10220

AN ESTIMATE OF SOILS CONTAMINATED WITH METALS

Prepared for:
U.S. Army Environmental Center (USAEC)
Aberdeen Proving Ground, Maryland 21010-5401

Prepared by:
Tennessee Valley Authority
P.O. Box 1010
Muscle Shoals, Alabama 35662-1010

June 1999

Report No. SFIM-AEC-ET-CR-99028

U.S. Army Environmental Center

AN ESTIMATE OF SOILS CONTAMINATED WITH METALS

Prepared for:
U.S. Army Environmental Center (USAEC)
Aberdeen Proving Ground, Maryland 21010-5401

Prepared by:
Tennessee Valley Authority
P.O. Box 1010
Muscle Shoals, Alabama 35662-1010

June 1999

Report No. SFIM-AEC-ET-CR-99028

REPORT DOCUMENTATION PAGE

Reconstruction of Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY (Leave Blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	June 1999	Final, August 1998 - June 1999

4.TITLE AND SUBTITLE
An Estimate of Soils Contaminated With Metals

5. FUNDING NUMBERS

6. AUTHOR(S)
Michael F. Broder and Ronald A. Westmoreland

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Tennessee Valley Authority
P.O. Box 1010
Muscle Shoals, Alabama 35662-1010

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Army Environmental Center
SFIM-AEC-ETD
Aberdeen Proving Ground, MD 21010-5401

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
SFIM-AEC-ET-CR-99028

11. SUPPLEMENTARY NOTES
Project Officer: Erik B. Hangeland

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT

This report provides the results of a study that examined the quantities of soils at Army installations in the United States contaminated with metals in order to understand the user requirements for environmental technology research and development work. A list of all Army sites with soil or sediment samples with metals contamination that need remediating is provided. Only those sites for which planned remedial actions are consistent with metals contamination were included in the estimate. For those sites included, this report provides a timeline for the treatment of metals-contaminated soil and an estimate of the volume of soil remaining to be treated. Per annum information is provided regarding the number of sites that will be involved in cleanup, the planned volumes of soil to be treated, and the funds budgeted for treatment. A summary of the proposed methods for treating the contaminated soil is also given. This project is an expansion of work that was performed by TVA for the U.S. Army Environmental Center (USAEC) involving explosives-contaminated soil, as reported in USAEC Report No. SFIM-AEC-ET-CR-98002 and organic-contaminated soil reported in USAEC Report No. SFIM-AEC-ET-CR-99006.

Based on 1998 data, TVA has estimated that there are 450 sites at 95 installations with 2,285 KCY of soil requiring cleanup due to contamination by metals. An additional 2,861 acres of land will either be capped or enclosed within a fence. For about half of the sites, disposal in a landfill was listed as a treatment technology. The projected cost for either treating soil or reducing the risk associated with these 450 sites is $1,038M.

14. SUBJECT TERMS
Metals, Soil, Remediation, Contamination.

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

Executive Summary

This report provides an estimate of the quantities of soil contaminated with metals at Army installations in the United States in order to understand the user requirements for environmental technology research and development (R&D) work. A timeline for the treatment of metals-contaminated soil, an estimate of the volume of soil remaining to be treated over time, and the funds budgeted for the treatment of soil are also provided. A summary of proposed remedial methods is provided, as is the prevalence of individual metals in contaminated soil at Army installations.

The data presented in this study deal only with soil and sediment contamination and associated remediation activities. Groundwater and surface water were not considered in this study. At sites where both soil and groundwater were to be remediated, only those costs associated with the soil treatment were included in this study. The Defense Site Environmental Restoration Tracking System (DSERTS) Database was used to identify sites with metals contamination. Sites identified from the DSERTS Database were screened to eliminate sites that were restored prior to 1999 or where aggregate metal contamination levels were below the EPA Region III risk-based action levels for residential use. Details of restoration activities were gleaned from Installation Action Plans (IAPs), Base Realignment and Closure (BRAC) Plans, and Cost-to-Complete (CTC) Reports. Points of Contact (POC) for installations were contacted for information on sites for which information was lacking. CTC information was used to further screen sites based on the proposed remediation method. Sites for which proposed treatment methods were inconsistent with metals contamination were also eliminated. For example, if the proposed remedial action involved only soil vapor extraction, then the site was eliminated from the estimate. Sites, however, being covered with a low permeability cap or managed using institutional controls were included in the estimate.

Based on 1998 data, it is estimated that there are 450 sites at 95 installations with 2,285 KCY of soil requiring cleanup due to contamination by metals. An additional 2,861 acres of land will either be capped or enclosed within a fence. The projected cost for either treating soil or reducing the risk associated with these 450 sites is $1,038M. By the year 2008, the restoration should be completed on approximately 75% of the sites for which environmental restoration is required. For about half of the sites, disposal in a landfill was listed as a treatment technology. Lead was found to be the most common metal contaminant at Army sites followed by arsenic, manganese, antimony, cadmium, copper, and mercury.

Table of Contents

	Page No.
Purpose	1
Scope	1
Research & Analysis Methods	2
Results	4
Ranges and OB/OD Areas Included in the Estimate	9
Prevalence of Particular Metals at Sites	9
Sites Being Treated by Technologies Better Suited for Other Contaminants	11
Comparison to Explosives Estimate	11
Comparison to Organic Chemicals Estimate	11
Conclusions	11
References	13
Appendix A Sites With Metals-Contaminated Soil That Will Be Remediated for Metals	A-1
Appendix B Sites With Metals-Contaminated Soil That Will Be Treated for Metals by a Technology Better Suited for Other Contaminants	B-1
Appendix C Sites With Proposed Remedial Actions That Will Have No Effect on Metals Contamination in Soil or Sediment	C-1
Appendix D Sites With No CTC Data for Remedial Actions	D-1

List of Figures

Figure 1	Metals-Contaminated Soil Remaining for Remediation	7

List of Tables

Table 1	Contaminants of Concern and Risk-Based Action Levels	3
Table 2	Annual Metals-Contaminated Soil Remediation Activity	5
Table 3	Summary of Remediation Methods Proposed for Soils Contaminated by Metals	8
Table 4	Prevalence of Individual Metal Contaminants	10
Table A-1	Sites With Metals-Contaminated Soil That Will Be Remediated for Metals	A-3
Table B-1	Sites With Metals-Contaminated Soil That Will Be Treated for Metals by a Technology Better Suited for Other Contaminants	B-3
Table C-1	Sites With Proposed Remedial Actions That Will Have No Effect on Metals Contamination in Soil or Sediment	C-3
Table D-1	Sites With No CTC Data for Remedial Actions	D-3

List of Acronyms and Abbreviations

AAP:	Army Ammunition Plant
AC:	Acres
AD:	Army Depot
BIO:	Bioremediation
BRAC:	Base Realignment and Closure
BV:	Bioventing
CAP:	Low Permeability Cap, Clean Closure Cap, or Vegetative Cover
CAS:	Chemical Abstract Service
COMP:	Composting
CTC:	Cost to Complete
DDs:	Decision Documents
DERA:	Defense Environmental Restoration Account
DPG:	Defense Planning Guidance
DSERTS:	Defense Site Environmental Restoration Tracking System
ERD:	Environmental Restoration Division
FS:	Feasibility Study
FUDS:	Formerly Used Defense Sites
GAC:	Granular Activated Carbon
GW:	Groundwater
IAPs:	Installation Action Plans
INC:	Incineration
INST:	Institutional Controls
IRA:	Interim Remedial Action
KCY:	Thousand Cubic Yards
KLF:	Thousand Linear Feet
LF:	To Dispose in a Landfill
LTM:	Long-Term Monitoring
LTO:	Long-Term Operation
ND:	Not Defined
NFA:	No Further Action
NM:	Non-Metals - Activity Is Not Related to Metals-Contaminated Soil
OB/OD:	Open Burn/Open Detonation Areas
PA:	Preliminary Assessment
PAH:	Polynuclear Aromatic Hydrocarbon
PCB:	Polychlorinated Biphenyl
POC:	Point of Contact
ppm:	Parts Per Million
RA:	Remedial Action
RBW:	Reactive Barrier Wall
RC:	Response Complete
RCRA:	Resource Conservation and Recovery Act

List of Acronyms and Abbreviations
(continued)

R&D:	Research and Development
RD:	Remedial Design
RfD/CSF:	Reference Dose/Cancer Slope Factor
RI:	Remedial Investigation
RODs:	Records of Decision
SI:	Site Investigation
SLW:	Slurry Wall
SOL:	Solidification
STAB:	Stabilization
SVE:	Soil Vapor Extraction
SVOC:	Semi-Volatile Organic Compound
TD:	Thermal Desorption
TRW:	TRW Systems Integration Group
TVA:	Tennessee Valley Authority
U.S.:	United States
USAEC:	United States Army Environmental Center
VIT:	Vitrification (in situ)
VOC:	Volatile Organic Compound

AN ESTIMATE OF SOILS CONTAMINATED WITH METALS

Purpose: The purpose of this study was to examine the quantities of soil contaminated with metals at Army installations in the United States in order to understand the user requirements for environmental technology research and development (R&D) work. This report provides a timeline for the treatment of metals-contaminated soil and an estimate of the volume of soil remaining to be treated over time. Per annum information is provided regarding the number of installations and sites that will be involved in cleanup, the planned volumes of soil to be treated, and the funds budgeted for treatment. A summary of the proposed methods for treating the contaminated soil is also given.

Scope: The data presented in this study deals only with soil and sediment contamination and associated remediation activities. Groundwater and surface water were not considered in this study. In compiling the list of sites requiring remediation, those sites planning to treat only groundwater were omitted. For example, sites planning to do reduction/precipitation or ion exchange of contaminants in groundwater were omitted. At sites where both soil and groundwater were to be remediated, only those costs associated with the soil treatment were included in this study.

Assumptions were made regarding the driving force for remedial actions and these were based on the applicability of proposed remediation methods. The *Remediation Technologies Screening Matrix and Reference Guide* (USAEC, 1997) was used to select appropriate remediation methods. For many sites, the proposed treatment will not affect metal contaminants. For example, soil vapor extraction (SVE), bioventing (BV), and composting (COMP) have no effect on metal contaminants. The full list of treatment methods which were excluded from consideration were:

- Bioventing (BV)
- Composting (COMP)
- Bioremediation (BIO)
- Soil Vapor Extraction (SVE)
- Building Demolition, Decontamination, and Debris Removal (NM—non-metals)
- UXO Surveys and Removal (UXO)

There are a number of ex-situ technologies where metal contaminants are removed and dealt with even though organic chemicals are the primary target of the technology. Incineration (INC) and thermal desorption (TD) fall into this category. The metal contaminants remain in the solid residue and are disposed of, or are treated, along with the volatile compounds. Sites being treated by these thermal technologies were summarized separately from those sites where the treatment methods appear to be driven by metals contamination.

Solidification (SOL) and stabilization (STAB) are remedies typically driven by metals contamination and all sites where these technologies will be used alone, or in conjunction with

other technologies, were included in the estimate. Since disposal in a landfill and containment by means of a low permeability cap or slurry wall can be used for metals contaminated soil, sites that will be treated by these methods were also included in the estimate. Institutional controls such as fencing or deed restrictions were also included in the estimate since they are acceptable remedial strategies for metals contamination. The treatment technologies considered consistent with metals contamination are as follows:

- Solidification (SOL)
- Stabilization (STAB)
- Disposal in a Landfill (LF)
- Installment of a Low Permeability Cap (CAP)
- Slurry Walls (SLW)
- In Situ Vitrification (VIT)
- Institutional Controls; i.e., fencing and deed restrictions (INST)

All sites where metals contamination of soil has been identified were included in this study. Burning grounds, former landfills, hazardous waste storage areas, vehicle maintenance areas, and fire fighting training areas were activities often associated with metals contamination. Small arms ranges and open burn/open detonation (OB/OD) areas were also included in this study.

There is a possibility that restoration activities assumed to be associated with metals may, in fact, be associated with other types of contaminants. To verify that the sites included in this estimate are indeed being remediated for metals contamination, support was requested from Points of Contact (POCs) at the Environmental Restoration Division (ERD) and at individual installations.

Research and Analysis Methods: The U.S. Army annually updates its appraisal of environmental cleanup requirements for each U.S. installation. The ERD of the U.S. Army Environmental Center (USAEC) compiles the documents dealing with environmental restoration from each installation. Documentation is provided which lists sites that are contaminated, the contaminants and their maximum concentrations, the contaminated media (soil, groundwater, surface water, etc.), proposed schedule for remediation, proposed method of remediation, estimated quantities of contaminated media, and funds budgeted for cleanup.

To simplify the task of identifying sites with metals contamination, the Defense Site Environmental Restoration Tracking System (DSERTS) database was queried for sites that were known to have metals contamination. The DSERTS database has a unique designation for each site under environmental investigation and contains a list of the maximum concentrations of all contaminants found at each site.

To eliminate sites that have been cleaned up or sites with levels of contamination below action levels, the following rejection criteria were used in the DSERTS query:

- Sites with response complete (RC) dates of 1998 or before
- Sites with an aggregate contamination level below the EPA Region III risk-based action level for residential use (contaminants and action levels are in Table 1)

Table 1
Contaminants of Concern and Risked-Based Action Levels

Contaminant	USEPA Region III Screening Levels			
			Soil Ingestion (mg/kg)	
	CAS No.	RfD_o/CSF_o	Industrial	Residential
Antimony and compounds	7440-36-0	4.00E-04	820	31
Arsenic (cancer)	7440-38-2	1.00E-04	3.8	0.43
Arsenic (non-cancer)	7440-38-2	4.00E-04	610	23
Barium and compounds	7440-39-3	7.00E-02	140,000	5,500
Beryllium and compounds	7440-41-7	2.00E-03	4,100	160
Boron	108-60-1	9.00E-02	180,000	7,000
Cadmium and compounds	7440-43-9	5.00E-04	1,000	39
Chromium III and compounds	16065-83-1	1.00E+00	1,000,000	78,000
Chromium (VI) and compounds	18540-29-9	5.00E-03	1,000	390
Cobalt	7440-48-4	6.00E-02	120,000	4,700
Copper and compounds	7440-50-8	4.00E-02	82,000	3,100
Lead	7439-92-1	N/A	1,000	400
Lithium	7439-93-2	2.00E-02	41,000	1,600
Manganese and compounds	7439-96-5	2.00E-02	41,000	1,600
Mercury (inorganic)	7439-97-6	3.00E-04	610	23
Mercury (methyl)	22967-92-6	1.00E-04	200	7.8
Molybdenum	7439-98-7	5.00E-03	10,000	390
Nickel and compounds	7440-02-0	2.00E-02	41,000	1,600
Selenium	7782-49-2	5.00E-03	10,000	390
Silver and compounds	7440-22-4	5.00E-03	10,000	390
Strontium (stable)	7440-24-6	6.00E-01	1,000,000	47,000
Thallium	7440-28-0	7.00E-05	140	5.5
Tin and compounds	7440-31-5	6.00E-01	1,000,000	47,000
Vanadium	7440-62-2	7.00E-03	14,000	550
Zinc	7440-66-6	3.00E-01	610,000	23,000

Using this screening method, a total of 889 sites at 102 installations were identified as potential sites requiring cleanup. The primary sources for information on the details of the remedial activity for each site were IAPs, BRAC Plans, and CTC reports. Installations, or parts of installations involved in the BRAC, submit BRAC Plans which provide historical data and information regarding environmental concerns and proposed actions and CTC reports. Defense Environmental Restoration Account (DERA) installations submit IAPs and CTC Reports. IAPs contain a description of each DERA site scheduled for remedial action or being investigated for possible remedial action. IAPs also provide a timetable for the phases of cleanup and their associated cost. CTC reports contain: 1) a roll-up page which gives a breakdown of funds requested for the various phases of environmental cleanup for each site and 2) a detail page for each site showing details of the basis for the funding request. In the past, IAPs and BRAC Plans did not necessarily contain CTC information. Beginning in 1998, both plans contain CTC data.

In BRAC Plans, the contaminated sites are generally not identified by the number designation used in the DSERTS database.

In the absence of hard copies of CTC data, two databases from which the 1998 constrained CTC reports were generated were obtained from ERD. One database contained information included in detail pages and was denoted the *Site Action Item Database*. The second database, the *Site Rollup Database*, contained the fiscal year costs for the seven phases of environmental restoration: Phase 1 Preliminary Assessment/Site Investigation (PA/SI), Phase 2 Remedial Investigation/Feasibility Study (RI/FS), Phase 3 Remedial Design (RD), Phase 4 Remedial Action (RA), Phase 5 Interim Remedial Action (IRA), Phase 6 Long-Term Monitoring (LTM), and Phase 7 Long-Term Operation (LTO). In some cases, the remedial actions were not defined. In these cases, either the POC at ERD or at the installation were contacted for definitive information on the sites.

The databases obtained from ERD contained information on all Army installations. The first task was to filter the data using the list of 889 sites generated from the DSERTS query for metals contamination. From the *Site Action Item Database,* several pieces of information were obtained; the actions planned for each site, the quantity of soil or area of land being treated, the phase in which the action will be done, and the cost of each activity. The action items were also filtered to remove activities that were not consistent with the scope of this study, that is, activities not consistent with remediation of metals-contaminated soil. Since the remedial action costs in the *Site Action Item Database* were not adjusted for geographical cost differences, costs given in the database had to be corrected using a geographical area cost factor. Contingency and project management costs also had to be added. The restoration phases associated with site actions could be selected from the *Site Action Item Database,* but the timing of the actions could not. The *Site Rollup Database*, which lists total phase costs by year, was used to establish a timetable for the phases and then the action item costs could be cash flowed according to their phase designation.

Results: The total number of sites which met the criteria for metals contamination are listed in Appendices A, B, C, and D. Table A-1 contains the list of 450 sites that ultimately became part of the estimate. These 450 sites require remediation of soil due to metals contamination and the treatment is driven by metals. Table B-1 contains the list of 54 sites which will be cleaned up by technologies better suited for other contaminants. Table C-1 lists 111 sites where the proposed treatments would have no effect on metal contaminants or the treatments involved only groundwater and not soil. A detailed description of why a particular site was omitted from the estimate is given in Appendix C.

Despite their selection by the DSERTS query, 127 of the 889 sites had no CTC data. These sites are shown in Table D-1 and were omitted from this estimate. According to ERD personnel, sites with no CTC data have either been cleaned up (response complete) or are low-priority sites that will not likely require remedial action.

Since this estimate deals with remedial actions, only those sites that had activities in Phases 4 and 5 (RA and IRA) could be used to build the estimate. Among the 762 sites for which there

was CTC data, 164 sites had no costs for Phases 4 and 5. These 164 sites, also listed in Table D-1, were omitted from the estimate because no remedial actions involving soil are planned for these sites. Of these 164 sites, 72 sites had only Phase 6 and/or 7 costs. For these 72 sites, remediation of soil has been completed or was never required and only monitoring or treatment of groundwater is required. Seventy of the 164 sites have no CTC data beyond Phase 3 (RD). This means that site investigations are expected to reveal that no further action is required or that so little is known about the sites that remedial actions could not be planned or budgeted. It is likely that, for some of these 70 sites, RI/FS activities planned in the future may reveal that remedial actions are required. For 22 of the 164 sites, Phases 1 through 3 and Phases 6 or 7 have costs while there are no costs for Phases 4 and 5. For these 22 sites, groundwater appears to be the only media involved in restoration activities.

From the 889 sites identified from the DSERTS query for metals contamination, a total of 291 (127 with no CTC data and 164 with no Phase 4 or 5 CTC data) sites were eliminated because they had no CTC cost for remedial actions (RA or IRA). This left 598 sites that could potentially become part of this estimate. Of these 598 sites, 450 became part of the estimate (Table A-1), 54 are to be remediated by INC or TD (Table B-1), and 111 were omitted because the proposed remediation does not involve soil or is not driven by metals (Table C-1). The total number of sites in the three tables exceeds 598 because there are 17 sites that have both Phases 4 and 5 and are, therefore, duplicated in tables.

The estimated total volume of soil contaminated with metals and the reduction in the volume over time due to remedial activities is shown in Table 2. The volume of soil scheduled for treatment each year and the quantity of soil remaining to be treated is shown in Figure 1. The information in Table 1 and Figure 1 was developed from the data in Appendix A - Sites With Metals-Contaminated Soil That Will Be Remediated for Metals.

The "Volume of Soil To Be Remediated" is based on quantities provided in the *Site Action Item Database*. For many of the sites, a volume of soil was not given and, instead, a treatment area in acres to be covered with a low permeability cap was given. At some sites, where institutional controls will be used to restrict public access, an area in acres was calculated using the length of fence provided from the *Site Action Items Database*. The area in acres was calculated using the length of fence and an assumed square geometry for the area being fenced. For sites being capped or fenced, no volume of soil was determined and these sites are, therefore, not reflected in the volume shown in Table 2. The "Volume of Soil to Be Remediated" each year is the quantity the installations plan to clean up each year if funds are available. The "Budget for RA" comes from the CTC entries for the budgeted funds for RAs or IRAs involving soil remediation. This value does not include funds for remedial investigation (RI)/feasibility study (FS) or remedial design (RD), nor does it include costs for activities not consistent with the scope of this study.

Table 2
Annual Metals-Contaminated Soil Remediation Activity

Year	99	00	01	02	03	04	05	06	07	08+	Total
*Volume of Soil to Be Remediated, KCY	462	302	209	133	109	221	146	66	74	565	2,285
Budget for RA, $M	71	74	99	67	71	83	51	41	38	445	1,038
Number of Sites, RA Completed	56	60	50	32	33	36	25	17	23	118	450
Projected Sites With New RODs/DDs	73	64	36	25	14	23	7	8	10	66	326

*Does not include 2,861 acres that will be capped or isolated within a fence.

The budget figures include funds requested for capping of sites even though the volume of soil being capped could not be determined.

The "Number of Sites, RA Completed" provides the quantity of sites where the RA should be finished in the year indicated as identified by the cash flow of CTC budgets.

The "Projected Sites With New RODs/DDs" is an estimate of the number of sites for which a ROD or DD will be signed in the year indicated. Generally, ROD/DD dates were not provided unless they had already been signed or would be signed within the next year. The ROD or DD is typically signed before the RD begins. A few sites will not require a ROD or DD, but the technology for RA should be selected prior to RD. The entries in this row in Table 2 were taken from the CTC data as the first year of RD. There is not an entry for all 450 sites because some of the RODs/DDs were completed prior to 1999 and because a few of the sites provided no RD dates.

The CTC data for remediation of soil is only projected to the year 2007. Activities scheduled further into the future are designated 2008+. The Defense Planning Guidance (DPG) document, however, calls for the cleanup of all high relative risk sites by the end of 2007, all medium relative risk sites will be cleaned up by the end of 2011, and the low risk sites will be cleaned up by the end of 2014. For this reason, the timeline for cleanup ends in the year 2014. The rate of cleanup of the soil remaining after the year 2008 was assumed to be constant. The slope of the line in Figure 1 is no steeper after the year 2008 than before. This indicates that the pace of cleanup is rapid enough to meet DPG goals. In other words, if the rate of cleanup projected to the year 2008 is maintained through the year 2014, DPG goals will be met.

Table 2 shows that, according to the latest available CTC data, about 75 percent of the soil that will be remediated for metals contamination will be cleaned up prior to the year 2008 if funding is available.

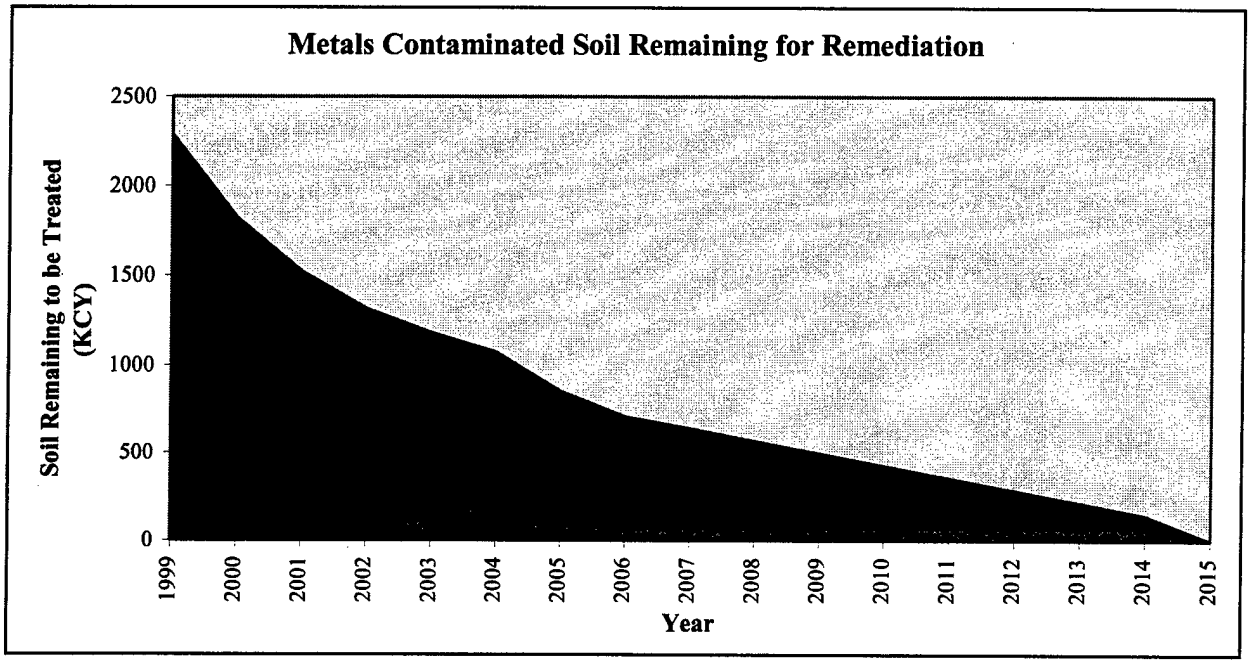

Figure 1

For 112 sites, a low permeability cap is being proposed either alone or in conjunction with other technologies. An additional 7 sites will be fenced to prohibit public access. Sites for which institutional controls are being proposed (i.e., fencing or deed restrictions) were included in the estimate, as were sites being covered with a low permeability cap. Since there is no practical way to determine the volume of soil being capped, there was no soil volume associated with this type of treatment. Likewise, no volume of soil could be associated with areas being isolated within a fence. The amount of soil beneath caps or within fences is not accounted for, hence, the soil volume estimate given in Table 2 is not all inclusive. The "Budget for RA" contains funds for capping the 112 sites and for implementing institutional controls on 25 sites, as well as for cleanup of sites for which there is a volume estimate. Since some sites are under investigation and have no funds budgeted for remedial action, it is impossible to estimate the total volume of soil that will be remediated due to metals contamination. The estimate shown in Table 2 shows the totals based on available data.

By reviewing the *Site Action Item Database,* a summary was made of the types of remediation technologies being proposed for the 598 sites that had CTC data for RA or IRA. In Table A-1, these technologies are shown in the last column for each DSERTS site. In many cases, the cleanup technologies were the basis for omitting sites from the estimate. These sites and the

technologies which were the basis for omitting them appear in Table C-1. Table 3 summarizes the technologies being used and the number of sites planning to use the technologies.

Table 3
Summary of Remediation Methods Proposed for Soils Contaminated by Metals

Treatment Technology	Abbreviation	Number Proposed	Percentage of Sites	Percentage of all Treatments
Bioventing, Bioremediation, and Composting	BV, BIO, COMP	17	2.9	2.6
Incineration	INC	53	8.9	8.0
Institutional Controls (fencing, deed restrictions)	INST	25	4.2	3.8
Landfilling	LF	294	49	45
Low Permeability Cap	CAP	112	19	17
Low Temperature Thermal Desorption	TD	27	4.5	4.1
Non-Metals (building demolition, debris removal)	NM	27	4.5	4.1
Not Defined	ND	15	2.5	2.3
Reactive Barrier Wall	RBW	2	0.3	0.3
Slurry Wall	SLW	8	1.3	1.2
Soil Vapor Extraction	SVE	4	0.7	0.6
Solidification	SOL	36	6.0	5.5
Stabilization	STAB	29	4.8	4.4
Soil Vapor Extraction	SVE	4	0.7	0.6
Vitrification	VIT	1	0.2	0.2
Unexploded Ordnance	UXO	6	1.0	0.9

Many sites are currently being investigated or have scheduled an RI/FS in the future and the treatment technology has not yet been selected. For these sites, the treatment technology in Table A-1 has been designated as "ND" for "not defined." Since more than one treatment technology is being proposed for several sites (see Table A-1), the sum of the treatment technologies being proposed is greater than the number of sites involved. Table 3 does not include remedial technologies that involve pumping and treatment of groundwater. There were 34 sites from the total list of 598 where the remedial action involved only groundwater treatment. Many of the sites represented in Table 3 (sites where soil will be treated) have activities associated with groundwater, but they occur in phases 6 or 7, respectively, LTM or LTO.

Disposal in a RCRA landfill was the most common treatment method proposed. Among the 660 treatments being proposed, landfilling accounted for 45 percent of them. On 49 percent of the sites, contaminated soil will be landfilled. This is surprising since landfill disposal is considerably more expensive than other treatment methods and without stabilization or solidification, the environmental risk from the metals is only being shifted to the landfill. Solidification and stabilization make up 9.9 percent of the treatments proposed. It is possible that for many sites where landfilling is proposed, the soil will be solidified or stabilized even though this is not reflected in the data. Anecdotal evidence suggests that early in the restoration process, landfill disposal is generally selected as the treatment remedy because of its high cost. As more is learned about the sites, less costly alternatives are often chosen. The fact that landfilling was listed so often indicates that much of the restoration activity associated with metals is in the early phases.

Ranges and OB/OD Areas Included in the Estimate: In Table A-1, the description of each site is listed in the second column. Of particular interest is the number of sites included in this estimate that were former OB/OD areas or ranges. A review of the descriptions of sites revealed that 13 of the sites are small arms ranges and 36 sites are burning grounds. Of these 36 burning areas, 20 appear to have been used to burn only trash. Sixteen of the burning areas appear to have been used for burning and detonating munitions and can be considered OB/OD areas.

Prevalence of Particular Metals at Sites: The DSERTS database was searched to determine the prevalence of individual metal contaminants at the sites. This was done by screening the database for sites with individual metals contamination in excess of the EPA Region III Residential Screening Level for that contaminant. The criterion used to select sites for the estimate of metals-contaminated soil involved aggregate contaminant levels of all metals. In this section, individual metal contaminants were examined. Table 4 shows the individual contaminants that were identified, the number of sites with detectable levels of the contaminant in soil, and the number of sites for which the contamination level exceeded the EPA Region III Screening Levels.

Lead is the most common metal contaminant in soil at Army installations based on the EPA Region III Residential Screening Level. In decreasing order after lead, the most common metal contaminants are arsenic, manganese, antimony, cadmium, copper, and mercury. The screening of the database produced 3,671 hits for metals contamination in soil at 676 sites. There were 399 sites where the individual contaminants exceeded the Screening Level and possibly 22 more sites where the valence of the element was unknown or where the level was not defined. The number of different sites meeting the criteria of this screening may be less than 399 since there are probably sites contaminated with more than one metal in excess of the screening level.

Table 4
Prevalence of Individual Metal Contaminants

Contaminant	Number of Sites	EPA Region III Residential Screening Level (mg/kg)	Number of Sites With Concentrations Greater than the Screening Level
Lead	523	400	142
Arsenic	447	Noncancer - 23 Carcinogenic - 0.43	118 3 121
Manganese	164	1,600	45
Antimony	87	31	35
Cadmium	238	39	20
Copper	198	3,100	11
Mercury	220	Inorganic – 23 Organic – 7.8	9 1 10
Zinc	219	23,000	5
Barium	270	5,500	2
Beryllium	167	160	2
Nickel	137	1,600	2
Vanadium	109	550	2
Silver	89	390	1
Strontium	2	47,000	1
Selenium	107	390	0
Cobalt	87	4,700	0
Molybdenum	11	390	0
Boron	8	7,000	0
Tin	7	47,000	0
Lithium	1	1,600	0
Chromium	328	III – 78,000 VI – 390	≤ 16
Phosphorus (white)	3	Not Defined	≤ 3
Uranium	2	Not Defined	≤ 2
Calcium Cyanide	1	Not Defined	≤ 1
Aluminum	124	Not Defined	0
Iron	122	Not Defined	0
Total Hits	3,671	--	399 (+ up to 22)

Sites Being Treated by Technologies Better Suited for Other Contaminants: Table B-1, Appendix B, lists the 54 sites for which there are plans to treat contaminated soil by thermal methods only. These sites were listed separately because thermal treatment of soil is normally not effective for metals and inorganic materials. However, since these are ex-situ methods that require the excavation of soil, metal contaminants are expected to be handled in the solid residue or off gases. Sites where these thermal treatments are being proposed along with other treatments that are consistent with metals contamination are not included in Table B-1.

Comparison to Explosives Estimate: Unlike explosives contamination which is predominantly restricted to areas where explosives were manufactured or shells were loaded and packed, metals are much more ubiquitous. Many more installations were found to have metals contamination. Burning grounds, landfills, hazardous waste storage areas, waste treatment areas, pesticide storage and handling areas, vehicle maintenance areas, fuel storage and handling areas, and fire fighting training areas are some of the sources for metals contamination and these activities are common at many Army installations. The cleanup of explosives contamination is much more advanced than the cleanup of metals. The volumes of explosives-contaminated soil are well defined and the installations with large soil volumes have completed remedial investigations (RI) and feasibility studies (FS) and are in the remedial design (RD) or remedial action (RA) phase (USAEC, 1997 and 1998). In contrast, much of the metals contamination is in the preliminary assessment phase or site investigation phase. There appears to be a little overlap of the metals and explosive contaminated sites. Seven sites included in the explosives estimate are also in this metals estimate; three are at ARDEC (Picatinny Arsenal), three are at Sunflower AAP, and one is at Camp Navajo.

Comparison to Organic Chemicals Estimate: Comparison of the sites in the organic estimate and the metals estimate revealed that there is some overlap of these two problems. The treatment technologies listed for many of the metals sites are better suited for organic chemicals. It is for this reason that sites being treated thermally were placed in a separate list (Table B-1, Appendix B). Among the 450 sites that are included in this estimate, 41 of the sites were also in the estimate of soil contaminated by organic compounds. A review of the site descriptions also revealed that activities which resulted in metals contamination of soil also result in organic chemical contamination of soil (USAEC, 1999).

Conclusions: According to the most recent summaries of restoration activities at Army installations, there is approximately 2,285 KCY of soil that will be remediated due to contamination by metals and an additional 2,861 acres that will be capped or enclosed within a fence. The metals-contaminated soil is in 450 sites spread over 95 installations. The estimated budget for remediating this soil is $1,038M. Trends in the data suggest that landfill disposal will not be used as often as is currently proposed. As RI/FSs are completed, many sites will choose less costly remedial strategies such as capping. Investigations that are underway or scheduled in the future may also alter the current plans for many sites. Some sites currently scheduled for cleanup may not have to be cleaned up and others that were assumed to pose little risk may eventually have to be remediated. Since a large number of sites are currently being investigated

or will be investigated in the future, the estimated amount of soil that will be remediated, as well as the technologies used, will change over time.

The information contained in this report is based directly on information updated annually by each installation. The IAPs, BRAC Plans, CTC Databases, and DSERTS databases were reviewed. Followup telephone calls were made to installation POCs or USAEC POCs to obtain clarification when necessary. This report summarizes the data on contamination of soils by metals so that the user requirements for environmental technology R&D can be assessed.

References Cited

1. U.S. Army Environmental Center (USAEC). 1997. Federal Remediation Technologies Roundtable. *Remediation Technologies Screening Matrix and Reference Guide*. Report No. SFIM-AEC-ET-CR-97053.

2. U.S. Army Environmental Center (USAEC). 1998. *An Estimate of Soils Contaminated With Secondary Explosives*. Report No. SFIM-AEC-ET-CR-98002. Prepared by TVA. February 1998.

3. U.S. Army Environmental Center (USAEC). *New Lower Estimate for Soils Contaminated With Secondary Explosives and the Associated Implications*. Report No. SFIM-AEC-ET-CR97026. Prepared by TRW Inc. June 1997.

4. U.S. Army Environmental Center (USAEC). 1998. *An Estimate of Soils Contaminated With Organic Compounds*. No. SFIM-AEC-ET-CR-99006. Prepared by TVA.

General References

1. U.S. Army Environmental Center (USAEC), Environmental Restoration Division. Installation Action Plans. Various authors. February - March 1998.

2. U.S. Army Environmental Center (USAEC), Environmental Restoration Division. *Base Realignment and Closure (BRAC) Cleanup Plans*. Various authors. 1995 - 1997.

3. U.S. Army Environmental Center (USAEC), Environmental Restoration Division. Site Rollup and Site Detail Estimate Reports (Cost-to-Complete Reports). Various authors. March - April 1997 and March - April 1998.

4. U.S. Army Environmental Center (USAEC), Environmental Restoration Division. *Site Action Item Database 1998.*

5. U.S. Army Environmental Center (USAEC), Environmental Restoration Division. *Site Rollup Database 1998.*

Appendix A

Sites With Metals-Contaminated Soil That Will Be Remediated for Metals

Appendix A

Sites With Metals-Contaminated Soil That Will Be Remediated for Metals

The sites listed in this Appendix were taken from a list of 889 that were identified by a query of the DSERTS database. Sites having no CTC data for remedial activities were omitted from the list of 889. These sites were compared with sites listed in two databases from which the CTC Detail Pages and Rollup Pages are generated. Sites with metals contamination in soil that are scheduled for remediation by a method consistent with metals contamination are included in Table A-1. Sites that had no proposed remedial activities involving metals-contaminated soil were omitted, as were sites with proposed remedial actions that are not consistent with metals contamination.

The databases provided information regarding the timing of the RD and RA and the cost spread by fiscal year for remedial actions. The databases also provided information on the quantities of soil being treated at each site in KCY or in acres (if the treatment involved capping of the contaminated soil or isolation within a fence). Only those costs associated with remediation of soil were included in Table A-1. If remedial actions involved treatments inconsistent with the scope of this estimate, those costs were omitted and the per annum spread of costs for relevant activities was proportioned the same, as was the total RA costs provided in the *Site Rollup Database*. All data in this appendix is from 1998 CTC constrained cost data.

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
ABERDEEN PROVING GROUND																	
AAOA02	SURFACE DISPOSAL AREA		7		2007	0	0	0	0	0	0	0	0	2055	0	2055	CAP
AAOA07	STORAGE AREA		10.5		2008	0	0	0	0	0	0	0	0	0	3082	3082	CAP
EABR03-A	LANDFILL		7.7		1999-00	1366	818	0	0	0	0	0	0	0	0	2184	CAP
EABR11-H	STORAGE AREA			2008	2008	0	0	0	0	0	0	0	0	0	359	359	ND
EABR11-I	STORAGE AREA	21.35		2002	2008	0	0	0	0	0	0	0	0	0	2574	2574	LF
EABR15-A	BURN AREA		1.56	2002	2008	0	0	0	0	0	0	0	0	0	1548	1548	CAP
EACC1D	INDUSTRIAL DISCHARGE	1.1	11	2008	2008	0	0	0	0	0	0	0	0	0	4117	4117	INC-CAP-TD
EACC1K	LANDFILL	0.5	25	2008	2008	0	0	0	0	0	0	0	0	0	7628	7628	INC-CAP
EACC2D	DISPOSAL PIT/DRY WELL	0.25	2	2008	2008	0	0	0	0	0	0	0	0	0	731	731	INC-CAP
EACC2H-C	CONTAMINATED BUILDING	1	1.2	2008	2008	0	0	0	0	0	0	0	0	0	3030	3030	CAP-INC
EACC3C	UNDERGROUND TANK FAR	2.2	40.2	2008	2008	0	0	0	0	0	0	0	0	0	4331	4331	CAP-INC-TD
EACC3K-A	INDUSTRIAL DISCHARGE	1.25	8.3	2007	2008	0	0	0	0	0	0	0	0	0	1181	1181	CAP-INC-TD
EACC3M-B	INCINERATOR		8.1	2008	2008	0	0	0	0	0	0	0	0	0	2378	2378	CAP
EACC5A	CONTAMINATED SEDIMEN	10		2008	2008	0	0	0	0	0	0	0	0	0	43685	43685	STAB-LF
EACI02-A	LANDFILL				1999	90	0	0	0	0	0	0	0	0	0	90	ND
EAGQ00	CONTAMINATED GROUND				1999	86	0	0	0	0	0	0	0	0	0	86	ND
EAJF05	BURN AREA	4.5			1999	300	0	0	0	0	0	0	0	0	2638	2938	SLW
EAJF05-A	DISPOSAL PIT/DRY WELL	4.5		2008	2008	0	0	0	0	0	0	0	0	0	2638	2638	SLW
EAOE04	SURFACE DISPOSAL AREA			2004	2008	0	0	0	0	0	56	0	0	0	2018	2074	ND
EAOE16	STORAGE AREA			2004	2005	0	0	0	0	0	0	168	0	0	0	168	ND
EAOE24	BURN AREA			2006	2006	0	0	0	0	0	0	0	119	0	0	119	ND
EAOF02	LANDFILL				99;06;07	6682	1500	1500	1500	1502	0	0	6693	2104	0	21481	ND
EAOF04	CONTAMINATED GROUND		15	99;03	03--06	0	0	0	0	4000	6000	5000	1085	0	0	16085	CAP
EAWW10-A	DISPOSAL PIT/DRY WELL	0.5	2	2004	2008	0	0	0	0	0	0	0	0	0	280	280	CAP-LF
EAWW10-E	SURFACE IMPOUNDMENT/	1.2		2004	2008	0	0	0	0	0	0	0	0	0	437	437	TD
EAWW14-A	STORAGE AREA			2004	2005	0	0	0	0	0	0	410	0	0	0	410	ND
EAWW14-B	UNDERGROUND STORAGE			2004	2008	0	0	0	0	0	0	0	0	0	342	342	ND
EAWW14-C	INDUSTRIAL DISCHARGE			2004	2008	0	0	0	0	0	0	0	0	0	441	441	ND
EAWW21-C	LANDFILL		1	2004	2008	0	0	0	0	0	0	0	0	0	321	321	CAP
EAWW21-E	LANDFILL	6		2004	2005	0	0	0	0	0	0	680	0	0	0	680	SOL
ALABAMA AAP																	
SITE 04	CONTAMINATED BUILDING	1.25			1999	302	0	0	0	0	0	0	0	0	0	302	LF
SITE 09	SURFACE IMPOUNDMENT/	3.5		1999	1999	350	0	0	0	0	0	0	0	0	0	350	SOL
AMSA 137																	
WSMC-01	MAINTENANCE YARD	10.75		2000-01	2002-06	0	0	0	75	25	25	25	25	0	475	650	LF
ANNISTON ARMY DEPOT																	
ANAD-08	DISPOSAL PIT/DRY WELL	1		2007	2008	0	0	0	0	0	0	0	0	0	150	150	LF
ANAD-09	DISPOSAL PIT/DRY WELL		0.5	1999	2002-04	0	0	0	238	0	0	0	0	0	0	238	CAP
ANAD-13	DISPOSAL PIT/DRY WELL		2	1999	00,02,04	0	0	0	960	0	0	0	0	0	0	960	CAP
ANAD-28	LANDFILL		1	1999	00,03,04	0	0	0	0	0	0	0	486	0	0	486	CAP
ANAD-35	EXPLOSIVE ORDNANCE DI	5		2000	2008	0	0	0	0	0	0	0	0	0	311	311	LF
ANAD-44	CONTAMINATED SEDIMEN	5		1999	00-01	0	67	8	0	0	0	0	0	0	0	75	LF
ARDEC (PICATINNY ARSENAL)																	
PICA-001	DISPOSAL PIT/DRY WELL	0.8		2001	2002-04	0	0	0	81	50	50	0	0	0	0	181	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
PICA-002	BURN AREA		2		2000-02	0	500	799	100	0	0	0	0	0	0	1399	CAP
PICA-069	STORAGE AREA	0.34		2002	2003	0	0	0	0	80	0	0	0	0	0	80	LF
PICA-072	STORAGE AREA	1.6		2004	2005-06	0	0	0	0	0	0	163	200	0	0	363	LF
PICA-079	WASTE TREATMENT PLANT	3.2		2002	2003-07	0	0	0	0	150	100	200	177	100	0	727	LF
PICA-096	CONTAMINATED BUILDING	0.4		2008	2008	0	0	0	0	0	0	0	0	0	90	90	LF
PICA-097	OIL WATER SEPARATOR	0.8		2003	2004	0	100	0	0	0	81	0	0	0	0	181	LF
PICA-104	SURFACE DISPOSAL AREA	0.8		2008	2008	0	0	0	0	0	0	0	0	0	169	169	LF
PICA-107	SURFACE DISPOSAL AREA	0.75		2002	2002-03	0	0	0	150	20	0	0	0	0	0	170	LF
PICA-108	SPILL SITE AREA	0.75		2001	2004-06	0	0	0	0	0	50	60	60	0	0	170	LF
PICA-109	CONTAMINATED BUILDING	0.75		2008	2008	0	0	0	0	0	0	0	0	0	170	170	LF
PICA-115	CONTAMINATED BUILDING	0.75		2007	2008	0	0	0	0	0	0	0	0	0	170	170	LF
PICA-122	CONTAMINATED BUILDING	0.75		2007	2008	0	0	0	0	0	0	0	0	0	170	170	LF
PICA-165	SURFACE DISPOSAL AREA	0.4		2008	2008	0	0	0	0	0	0	0	0	0	90	90	LF
PICA-172	SURFACE DISPOSAL AREA	1		2001	2003-06	0	0	0	0	50	77	50	50	0	0	227	LF
PICA-184	CONTAMINATED BUILDING	0.4		2000	2001	0	0	90	0	0	0	0	0	0	0	90	LF
PICA-191	SPILL SITE AREA	0.4		2007	2008	0	0	0	0	0	0	0	0	0	90	90	LF
PICA-192	CONTAMINATED FILL	0.55		2004	2004-05	0	0	0	0	0	60	35	0	0	0	95	LF
PICA-193	CONTAMINATED SEDIMEN	1.6		2002	2003-06	0	0	0	0	50	100	160	109	0	0	419	LF
PICA-194	CONTAMINATED SEDIMEN	1.2		1999	2000-07	0	500	228	197	200	200	613	400	350	0	2688	LF
PICA-199	CONTAMINATED BUILDING	1.6		2002	2005-06	0	0	0	0	0	0	163	200	0	0	363	LF
PICA-209	CONTAMINATED BUILDING	1.6		2005	2004-06	0	0	0	0	0	163	100	100	0	0	363	LF
BADGER ARMY AMMUNITION PLANT																	
BAAP-001	SURFACE IMPOUNDMENT/		35	2004	2006	907	0	0	0	0	0	0	3558	243	0	4708	CAP
BAAP-33	BURN AREA	4.8	3.85	1999	99;03;06;07	470	0	0	0	1893	0	0	0	2840	2006	7209	CAP-INC
BAAP-36	DISPOSAL PIT/DRY WELL	48.4	10		99;08	450	0	0	0	0	0	0	0	0	10674	11124	STAB-CAP
BLUE GRASS FACILITY-LEAD																	
BLGR-005	STORAGE AREA	1.5		2008	2008	0	0	0	0	0	0	0	0	0	308	308	LF
BLGR-020	LANDFILL	1.5		2000	2002	0	0	0	258	0	0	0	0	0	0	258	STAB-LF
BLGR-031	EXPLOSIVE ORDNANCE DI	8		2003	2004	0	0	0	0	0	1133	0	0	0	0	1133	SOL
BLGR-032	BURN AREA	8		2005	2006	0	0	0	0	0	0	0	1133	0	0	1133	SOL
C.E. KELLY SUPPORT FACILITY																	
SITE 43C	SEWAGE TREATMENT PLAN	0.56			2008	0	0	0	0	0	0	0	0	0	128	128	LF
CAMP KILMER																	
CK-06	MAINTENANCE YARD		0.2		1999	960	0	0	0	0	0	0	0	0	0	960	CAP
CAMP NAVAJO																	
NAAD-03	BURN AREA	7		2003	2003	0	0	0	0	1957	0	0	0	0	0	1957	TD
NAAD-11B	SPILL SITE AREA	2.67		1999	2000-04	0	150	500	650	1200	1513	0	0	0	0	4013	LF-TD-INC
NAAD-14F	EXPLOSIVE ORDNANCE DI	4.25		2001	2002	0	0	0	805	0	0	0	0	0	0	805	LF
NAAD-14G	EXPLOSIVE ORDNANCE DI	1.75		2004	2005	0	0	0	0	0	0	352	0	0	0	352	LF
NAAD-40	LANDFILL		8.5	1999	2000-04	0	450	874	1900	1900	1900	0	0	0	0	7024	CAP
CAMP PEDRICKTOWN																	
CP-07	CONTAMINATED GROUND	0.95			1999	800	0	0	0	0	0	0	0	0	0	800	LF
CORNHUSKER AAP																	
CAAP-005	DEMO AND BURNG GD		32	1999	2000	68	17	0	0	0	0	0	0	0	0	85	INST

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
DESERET CHEMICAL DEPOT																	
TEAD(S)-01	CHEMICAL DISPOSAL	100	200	2008	2008	0	0	0	0	0	0	0	0	0	1E+05	110386	INC-CAP
TEAD(S)-03	CHEMICAL DISPOSAL	0	No Qty	2000	2006-07	0	0	0	0	0	0	0	500	557	0	1057	CAP
TEAD(S)-05	DRAINAGE DITCH	0	No Qty	2000	2000	0	110	0	0	0	0	0	0	0	0	110	CAP
TEAD(S)-09	AREA 2 (SWMU 9)				2000	0	20	0	0	0	0	0	0	0	0	20	INST
TEAD(S)-14	DEACTIVATION FURNAC				2000	0	20	0	0	0	0	0	0	0	0	20	INST
TEAD(S)-15	SURFACE IMPOUNDMENT/	0.6			1999	76	0	0	0	0	0	0	0	0	0	76	LF
TEAD(S)-22	EXPLOSIVE ORDNANCE DI	50	100	2008	2008	0	0	0	0	0	0	0	0	0	50219	50219	INST-CAP
TEAD(S)-23	CAMDS LANDFILL (SMWU-30)		0.45		2000	0	44	0	0	0	0	0	0	0	0	44	INST
TEAD(S)-26	EXPLOSIVE ORDNANCE DI	3.7			2005	0	0	0	0	0	0	688	0	0	0	688	LF
TEAD(S)-28	BLDG 533 (SWMU-19)				2000	0	20	0	0	0	0	0	0	0	0	20	INST
TEAD(S)-29	LEACH FIELD	0.1		2000	2000	0	15	0	0	0	0	0	0	0	0	15	LF
TEAD(S)-30	SPILL SITE AREA	1.1		2000	2001	0	0	209	0	0	0	0	0	0	0	209	LF
DUGWAY PROVING GROUND																	
DPG-002	LANDFILL	0.02		1999	1999	109	0	0	0	0	0	0	0	0	0	109	LF-CAP
DPG-004		15		2004	2006-08	0	0	0	0	0	0	0	2000	8186	5049	15235	SOL-LF
DPG-007	ABOVE GROUND STORAG	2		2002	2003-04	0	0	0	0	619	700	0	0	0	0	1319	LF
DPG-018	SURFACE DISPOSAL AREA		0.25	2004	2005	0	0	0	0	0	0	42	0	0	0	42	CAP
DPG-019	LANDFILL	0.11			2008	0	0	0	0	0	0	0	0	0	20	20	LF
DPG-021	LANDFILL		2	2002	2005	0	0	0	0	0	0	546	0	0	0	546	CAP
DPG-032	LANDFILL	0.03	2.5	2002	2003-05	0	0	0	0	250	300	252	0	0	0	802	LF-CAP
DPG-033	SURFACE IMPOUNDMENT/	0.52		1999	1999	11	0	0	0	0	0	0	0	0	0	11	LF
DPG-037	LANDFILL	4	33.4	1999	99-01;03	2926	2846	4855	0	1053	0	0	0	0	0	11680	LF-CAP
DPG-039	LANDFILL		2.6	2004	2005	0	0	0	0	0	0	235	0	0	0	235	CAP
DPG-041	SURFACE IMPOUNDMENT/	0.5	3	2002	2003-05	0	0	0	0	300	350	670	0	0	0	1320	STAB-LF-CAP
DPG-044	WASTE TREATMENT PLANT	2.5	2	2002	2003-04	0	0	0	0	1000	588	0	0	0	0	1588	INC-CAP
DPG-046	DISPOSAL PIT/DRY WELL			2008	2008	0	0	0	0	0	0	0	0	0	1699	1699	INST
DPG-051	SURFACE IMPOUNDMENT/	12		1999	2008	0	0	0	0	0	0	0	0	0	7914	7914	LF
DPG-055	LANDFILL	2.5	4.5	1999	02-06;08	0	0	0	250	500	500	996	2737	0	2675	7658	INC-CAP
DPG-063	WASTE TREATMENT PLANT	0.007		1999	1999	9	0	0	0	0	0	0	0	0	0	9	LF
DPG-075	SURFACE IMPOUNDMENT/	2.5		2008	2008	0	0	0	0	0	0	0	0	0	1660	1660	LF
DPG-090	BURN AREA		4	2005	2004	0	0	0	0	0	382	0	0	0	0	382	CAP
DPG-168	CAR WASHRACK	0.1	11.8	2004	2008	0	0	0	0	0	0	0	0	0	1516	1516	LF-CAP
DPG-171	CONTMANATED BUILDI				2008	0	0	0	0	0	0	0	0	0	50	50	INST
DPG-173	CONTAMINATED BUILDING	1.5	0.5	2004	2008	0	0	0	0	0	0	0	0	0	1124	1124	LF-CAP
DPG-206	SURFACE DISPOSAL AREA				2008	0	0	0	0	0	0	0	0	0	1737	1737	ND
EAST FORT BAKER																	
BAKO-4	CONTAMINATED SEDIMEN	1.5		1999	1999	400	0	0	0	0	0	0	0	0	0	400	LF
EAST WINDSOR USARC																	
SITE 10	CONTAMINATED SOIL PILE	0.15			1999	8	0	0	0	0	0	0	0	0	52	60	LF
FARMINGDALE WETS																	
FW05	CONTAMINATED SOIL PILE	0.3			1999	247	0	0	0	0	0	0	0	0	0	247	LF
FORT BRAGG																	
FTBR-001	LANDFILL		10	2001	2004-08	0	0	0	0	0	205	195	155	275	2171	3001	CAP
FTBR-004	LANDFILL		10	2001	2002-03	0	0	0	250	250	0	0	0	0	0	500	CAP

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
FTBR-008	LANDFILL		5		2000	0	200	0	0	0	0	0	0	0	0	200	CAP
FTBR-063	STORAGE AREA	3.52		1999	2001-03	0	0	20	165	166	0	0	0	0	0	351	LF
FORT CAMPBELL																	
FCPB-10	EXPLOSIVE ORDNANCE DI	0.58		2001	2004	0	100	0	0	0	0	0	0	0	0	100	LF
FCPB-19	SPILL SITE AREA	4.29		2001	2004	0	0	0	0	0	751	0	0	0	0	751	LF
FCPB-48	SURFACE DISPOSAL AREA			2003	2004	0	0	0	200	0	600	0	0	0	0	800	ND
FCPB-58	UNEXPLODED MUNITIONS/				1999	74	0	0	0	0	0	0	0	0	0	74	ND
FORT CHAFFEE																	
FTCH-17	SPILL SITE AREA	0.45			2000	0	75	0	0	0	0	0	0	0	0	75	LF
FTCH-46	CONTAMINATED BUILDING	0.35			2000	0	55	0	0	0	0	0	0	0	0	55	LF
FORT DETRICK																	
FTD 68	SPILL SITE AREA	0.59		1999	1999	263	0	0	0	0	0	0	0	0	0	263	SOL-LF
FORT DEVENS																	
FTDV-011	LANDFILL	2.11			1999	499	0	0	0	0	0	0	0	0	0	499	LF
FORT EUSTIS																	
FTEUST-30	CONTAMINATED SEDIMEN	7.6			1999-03	1895	100	100	300	100	0	0	0	0	0	2495	TD
FORT GILLEM																	
FTG-01	LANDFILL	109			1999-05	715	1490	605	1535	1210	2700	1814	0	0	0	10069	ND
FORT GORDON																	
FTGD-006	STORAGE AREA	0.22		2000	2008	0	0	0	0	0	0	0	0	0	179	179	STAB-LF
FTGD-032	SURFACE DISPOSAL AREA	0.6		2008	2008	0	0	0	0	0	0	0	0	0	71	71	LF
FTGD-032A	SURFACE DISPOSAL AREA	0.5		2000	2008	0	0	0	0	0	0	0	0	0	61	61	LF
FTGD-032B	SURFACE DISPOSAL AREA	0.5		2000	2008	0	0	0	0	0	0	0	0	0	61	61	LF
FTGD-035	PESTICIDE SHOP	0.22		1999	2000	0	34	0	0	0	0	0	0	0	0	34	LF
FORT GREELY																	
FGLY-076	BURN AREA		0.4	1999	1999	130	0	0	0	0	0	0	0	0	0	130	CAP
FORT HAMILTON																	
FTHM-12	SPILL SITE AREA	0.18		2000	2000	0	140	0	0	0	0	0	0	0	0	140	STAB-LF
FORT IRWIN																	
FTIR-02	LANDFILL		4.4		1999	500	0	0	0	0	0	0	0	0	0	500	CAP
FTIR-07	MIXED WASTE AREA	3.01			1999-01	10	465	37	0	0	0	0	0	0	0	512	LF
FTIR-38	SMALL ARMS RANGE	1			2000-01	0	50	253	0	0	0	0	0	0	0	303	LF
FORT JACKSON																	
FTJA-06	LANDFILL		4.5	2008	2008	0	0	0	0	0	0	0	0	0	741	741	CAP
FTJA-20	STORAGE AREA	0.14		2008	2008	0	0	0	0	0	0	0	0	0	117	117	STAB-LF
FTJA-21	LANDFILL		3	2008	2008	0	0	0	0	0	0	0	0	0	760	760	CAP
FTJA-23	UNEXPLODED MUNITIONS/	0.4		2004	2005	0	0	0	0	0	0	228	0	0	0	228	TD
FTJA-32	DISPOSAL PIT/DRY WELL	1.2		2008	2008	0	0	0	0	0	0	0	0	0	169	169	LF
FORT KAMEHAMEHA																	
FTKAM-12	DRAINAGE DITCH	7.5		2000	2000	0	746	0	0	0	0	0	0	0	0	746	STAB-LF
FTKAM-17	SURFACE DISPOSAL AREA	1		2000	2000	0	94	0	0	0	0	0	0	0	0	94	STAB-LF
FORT KNOX																	
FTKX-01	LANDFILL	1.8			2000-01	0	146	194	0	0	0	0	0	0	0	340	LF
FTKX-10	SURFACE IMPOUNDMENT/	3.7			2002-05	0	0	0	40	261	389	20	0	0	0	710	LF
FTKX-21	STORAGE AREA	0.5		2000	2002	0	0	0	100	0	0	0	0	0	0	100	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
FTKX-22	UNDERGROUND STORAGE	1		2001	2001	0	0	200	0	0	0	0	0	0	0	200	LF
FTKX-24	FIRE/CRASH TRAINING ARE	2.3		2008	2008	0	0	0	0	0	0	0	0	0	440	440	LF
FTKX-30	UNEXPLODED MUNITIONS/	1		2002	2008	0	0	0	0	0	0	0	0	0	205	205	LF
FTKX-33	STORAGE AREA	0.3			2008	0	0	0	0	0	0	0	0	0	57	57	LF
FTKX-35	STORAGE AREA	0.3			2008	0	0	0	0	0	0	0	0	0	57	57	LF
FTKX-40	UNDERGROUND STORAGE	2		2000	2000-02	0	191	180	25	0	0	0	0	0	0	396	LF
FORT LEAVENWORTH																	
FTL-57	SMALL ARMS RANGE	2		2001	2007	0	0	0	0	0	0	0	0	1067	0	1067	LF
FTL-63	STORAGE AREA	2.2		2003	2003-04	0	0	0	0	320.3	129.7	0	0	0	0	450	LF
FTL-65	SURFACE RUNOFF	7		2000	2005-07	0	0	0	0	0	0	27	1281	99	0	1407	LF
FORT LEWIS																	
FTLE-69	EXPLOSIVE ORDNANCE DI	6.3			1999-08	50	50	50	50	50	50	50	50	50	2700	3150	TD-LF
FORT MCCLELLAN																	
FTMC-32	CHEMICAL DISPOSAL	0.4			2000	0	86	0	0	0	0	0	0	0	0	86	LF
FORT MONMOUTH																	
FTMM-15	ABOVE GROUND STORAG	5			1999	16	0	0	0	0	0	0	0	0	0	16	LF
FORT POLK																	
POLK-08	LANDFILL		185		1999-08	900	1505	1625	1175	1011	100	15	15	1765	46890	55001	CAP
POLK-11	LANDFILL	1.06			2000	0	200	0	0	0	0	0	0	0	0	200	LF
FORT RILEY																	
FTRI-029	INCINERATOR	1.1			1999	25	0	0	0	0	0	0	0	0	0	25	LF
FORT RITCHIE																	
FTRC-06	COMP-FORMER SKEET		0.7		1999	99	0	0	0	0	0	0	0	0	0	99	INST
FORT RUCKER																	
FTRU-010	SURFACE IMPOUNDMENT/	0.6			2004	0	0	0	0	0	60	0	0	0	0	60	LF
FTRU-071	STORAGE AREA	0.22			2004	0	0	0	0	0	22	0	0	0	0	22	LF
FORT SHAFTER																	
FTSHF-52	STORAGE AREA	3.7			2008	0	0	0	0	0	0	0	0	0	232	232	STAB-LF
FORT SHERIDAN																	
FTSH-15	CHEMICAL DISPOSAL	0.1			2000	0	21	0	0	0	0	0	0	0	0	21	LF
FTSH-54	STORAGE AREA	1		2000	2000	0	277	0	0	0	0	0	0	0	0	277	LF
FORT WINGATE																	
FTWG-03	EXPLOSIVE ORDNANCE DI		2	2001	2002	0	0	0	1695	0	0	0	0	0	0	1695	CAP
FTWG-05	SURFACE DISPOSAL AREA		6	1999	2002	0	0	0	5087	0	0	0	0	0	0	5087	CAP
FTWG-27	SMALL ARMS RANGE	0.25			2001	0	0	50	0	0	0	0	0	0	0	50	LF
GREEN RIVER TEST SITE																	
GRTS-03	STORAGE AREA	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
GRTS-05	LANDFILL	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
GRTS-08	STORAGE AREA	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
GRTS-13	LANDFILL	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
GRTS-17	WASHRACK	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
GRTS-23	INDUSTRIAL DISCHARGE	1.5		2001	2002-04	0	0	0	125	125	25	0	0	0	0	275	LF
HAMILTON ARMY AIR FIELD																	
HAFB-017	WASTE TREATMENT PLANT	4.5			1999-00	1000	502	0	0	0	0	0	0	0	0	1502	LF
HAFB-026	CONTAMINATED SEDIMEN	6.5			1999-04	860	515	200	75	75	75	94	0	0	0	1894	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
HAWTHORNE ARMY AMMUNITION PLANT																	
HWAAP-A06A	LANDFILL		1	2008	2008	0	0	0	0	0	0	0	0	0	328	328	CAP
HWAAP-A06B	LANDFILL		1	2007	2007	0	0	0	0	0	0	0	0	328	0	328	CAP
HWAAP-A06C	LANDFILL		1	2008	2008	0	0	0	0	0	0	0	0	0	328	328	CAP
HWAAP-A06D	LANDFILL		1	2001	2001	0	0	328	0	0	0	0	0	0	0	328	CAP
HWAAP-A08	LANDFILL		1	2008	2008	0	0	0	0	0	0	0	0	0	328	328	CAP
HWAAP-A11	LANDFILL		1	2008	2008	0	0	0	0	0	0	0	0	0	325	325	CAP
HWAAP-B11B	SURFACE IMPOUNDMENT/	0.1			1999	20	0	0	0	0	0	0	0	0	0	20	LF
HWAAP-B24	DISPOSAL PIT/DRY WELL	1		2000	2007	0	0	0	0	0	0	0	0	141	0	141	SOL
HWAAP-B27B	SURFACE IMPOUNDMENT/		0.5	2008	2008	0	0	0	0	0	0	0	0	0	717	717	CAP
HWAAP-C01A	CONTAMINATED FILL	0.01	10	2000	2008	0	0	0	0	0	0	0	0	0	3196	3196	TD-CAP
HWAAP-I10	LANDFILL		0.5	2008	2008	0	0	0	0	0	0	0	0	0	155	155	CAP
HWAAP-I11	LANDFILL		0.5	2001	2002	0	0	0	154	0	0	0	0	0	0	154	CAP
HWAAP-J02	BURN AREA		1.2	2008	2008	0	0	0	0	0	0	0	0	0	390	390	CAP
HWAAP-J11	LANDFILL	0.8		2008	2008	0	0	0	0	0	0	0	0	0	173	173	LF
HWAAP-J15	LANDFILL		1.1	2008	2008	0	0	0	0	0	0	0	0	0	358	358	CAP
HWAAP-J28	SURFACE IMPOUNDMENT/	0.1		2008	2008	0	0	0	0	0	0	0	0	0	13	13	SOL
HWAAP-J29	LANDFILL	0.2		2008	2008	0	0	0	0	0	0	0	0	0	28	28	SOL
HOLSTON AAP																	
HSAAP-22	LANDFILL	7		2002	2003-04	0	0	0	0	203	1009	0	0	0	0	1212	LF
HSAAP-30	FIRING RANGE	1		2003	2003	0	0	0	0	953	0	0	0	0	0	953	STAB-LF
INDIANA AAP																	
INAAP-18	BURN AREA	1.5		2007	2008	0	0	0	0	0	0	0	0	0	109	109	LF
INAAP-24	LANDFILL	2		2006	2007	0	0	0	0	0	0	0	0	115	0	115	LF
INAAP-25	SURFACE IMPOUNDMENT/		10	2001	2005-06	0	0	0	0	0	0	2141	2141	0	0	4282	CAP
INAAP-26	BURN AREA	11	0.1	2008	2008	0	0	0	0	0	0	0	0	0	805	805	LF-CAP
INAAP-27		0.5	0.25	2001	2002	0	0	0	54	0	0	0	0	0	0	54	LF-CAP
INAAP-28	LANDFILL	5	1	2005	2007	0	0	0	0	0	0	0	0	451	0	451	LF-CAP
INAAP-34	BURN AREA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	34	34	LF
INAAP-46	LANDFILL	60		2006	2006-07	0	0	0	0	0	0	0	1450	2872	0	4322	LF
INAAP-59	LANDFILL	90		2008	2008	0	0	0	0	0	0	0	0	0	9068	9068	LF
INAAP-60	LANDFILL		0.06		2007	0	0	0	0	0	0	0	0	26	0	26	CAP
IOWA ARMY AMMUNITION PLANT																	
IAAP-001	SPILL SITE AREA	7.4		1999	1999-00	428	0	0	0	0	0	0	0	0	0	428	LF
IAAP-002	SPILL SITE AREA	1.9		1999	1999	184	0	0	0	0	0	0	0	0	0	184	LF
IAAP-003	SPILL SITE AREA	3.5		1999	1999	255	0	0	0	0	0	0	0	0	0	255	LF
IAAP-005	SPILL SITE AREA	0.2			1999	18	0	0	0	0	0	0	0	0	0	18	LF
IAAP-007	SPILL SITE AREA	0.4			1999	37	0	0	0	0	0	0	0	0	0	37	LF
IAAP-009	SPILL SITE AREA	0.5			1999	26	0	0	0	0	0	0	0	0	0	26	LF
IAAP-010	SPILL SITE AREA	0.5		1999	1999	69	0	0	303	0	0	0	0	0	0	372	LF-SLW
IAAP-011	SPILL SITE AREA	1.3		1999	1999	145	0	0	25	0	0	0	0	0	0	170	LF
IAAP-019	CONTAMINATED BUILDING	6			2002-03	0	0	0	63	202	0	0	0	0	0	265	LF
IAAP-020	LANDFILL		8.3	1999-01	199-01	214	275	1589	0	0	0	0	0	0	0	2078	CAP
IAAP-021	EXPLOSIVE ORDNANCE DI	0.8		1999	1999-03	137	0	0	0	366	0	0	0	0	0	503	LF
IAAP-027	LANDFILL	6			2002-03	0	0	0	46	219	0	0	0	0	0	265	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
IAAP-032	BURN AREA	9.6		1999	1999-00	558	1346	0	0	0	0	0	0	0	0	1904	LF
IAAP-036	BURN AREA	0.04		1999	1999,03	35	2	0	0	120	0	0	0	0	0	157	LF
IAAP-037	LANDFILL	1.3			1999	70	0	0	0	0	0	0	0	0	0	70	LF
IAAP-041	SURFACE IMPOUNDMENT/	6			2002-03	0	0	0	46	219	0	0	0	0	0	265	LF
IAAP-043	SURFACE DISPOSAL AREA	6			2003-04	0	0	0	0	46	219	0	0	0	0	265	LF
JEFFERSON PROVING GROUND																	
JPG-03	WASTE TREATMENT PLANT	2		2001	2002	0	0	0	767	0	0	0	0	0	0	767	LF
JPG-09	SURFACE DISPOSAL AREA	0.5		2000	2001	0	0	212	0	0	0	0	0	0	0	212	LF
JPG-44	SURFACE DISPOSAL AREA	1		2000	2001	0	0	370	0	0	0	0	0	0	0	370	LF
JPG-45	SURFACE DISPOSAL AREA	2		2001	2002	0	0	0	767	0	0	0	0	0	0	767	LF
JOLIET AAP																	
JAAP-001	LANDFILL	108		1999	2004-05	0	0	0	0	0	3384	3385	0	0	0	6769	LF
JAAP-003	BURN AREA	3.17		1999	1999-02	25	50	166	622	0	0	0	0	0	0	863	LF
JAAP-004	DISPOSAL PIT/DRY WELL	3.4		1999	2004	0	0	0	0	0	916	0	0	0	0	916	LF
JAAP-005	SPILL SITE AREA	1.69		1999	1999-03	284					0	0	0	0	0	284	LF
JAAP-008	CONTAMINATED BUILDING	6.1		1999	2000	0	92	0	0	0	0	0	0	0	0	92	LF
JAAP-009	LANDFILL	6.5		1999	1999-00	225	225	0	0	0	3640	0	0	0	0	4090	LF
JAAP-012	DISPOSAL PIT/DRY WELL	3.05		1999	2005	0	0	0	0	0	0	694	0	0	0	694	LF
JAAP-0L1	SURFACE DISPOSAL AREA	0.45		1999	1999-01	88	0	0	0	0	0	0	0	0	0	88	LF
JAAP-0L2	BURN AREA	2.03		1999	1999-00	500	452	0	0	0	0	0	0	0	0	952	LF
JAAP-0L3	BURN AREA	0.07	2.47	1999	1999-01	33	83	646	0	0	0	0	0	0	0	762	LF-CAP
JAAP-0L5	MAINTENANCE YARD	6.29		1999	1999-01	725	1000	317	0	0	0	0	0	0	0	2042	INC-LF
JAAP-L11	UNEXPLODED MUNITIONS/	0.53			1999-00	20	146	0	0	0	0	0	0	0	0	166	LF
JAAP-L17	SPILL SITE AREA	0.08			1999	65	0	0	0	0	86	0	0	0	0	151	LF-INC
JAAP-L23	STORAGE AREA	2.67			2002-03	0	0	0	10	576	0	0	0	0	0	586	LF
KANSAS AAP																	
KAAP-01	LANDFILL	1.9		2000	2002	0	0	0	350	0	0	0	0	0	0	350	LF
KAAP-02	LANDFILL	5		2000	2008	0	0	0	0	0	0	0	0	0	271	271	LF
KAAP-04	LANDFILL	5		2000	2008	0	0	0	0	0	0	0	0	0	824	824	LF
KAAP-05	LANDFILL	1.51		2005	2008	0	0	0	0	0	0	0	0	0	463	463	STAB-LF
KAAP-09	BURN AREA	3		2000	2004	0	0	0	0	0	1578	0	0	0	0	1578	STAB-LF
KAAP-15	SEWAGE TREATMENT PLAN	0.4		2008	2008	0	0	0	0	0	0	0	0	0	2549	2549	STAB-LF
KAAP-18	INDUSTRIAL DISCHARGE	434			99-00;04-05	1093	200	0	0	0	254	0	0	0	0	1547	STAB-LF
KAAP-28	SPILL SITE AREA	2		2008	2008	0	0	0	0	0	0	0	0	0	234	234	SOL
LAKE CITY AAP																	
LCAAP-002	SURFACE IMPOUNDMENT/		7	2008	2008	0	0	0	0	0	0	0	0	0	2463	2463	CAP
LCAAP-005	SURFACE IMPOUNDMENT/		7	2008	2008	0	0	0	0	0	0	0	0	0	2463	2463	CAP
LCAAP-007	SURFACE IMPOUNDMENT/		45	2003	2004-06;08	0	0	0	0	0	3959	3959	3958	0	3958	15834	CAP
LCAAP-012	DISPOSAL PIT/DRY WELL		6	2003	2003	0	0	0	0	2025	0	0	0	0	86	2111	CAP
LCAAP-013	DRAINAGE DITCH		6	2003	2003	0	0	0	2111	0	0	0	0	0	0	2111	CAP
LCAAP-015	SURFACE IMPOUNDMENT/		7	2007	2008	0	0	0	0	0	0	0	0	0	2463	2463	CAP
LCAAP-016	LANDFILL		17	2000	2007-08	0	0	700	0	0	0	0	0	0	0	700	CAP
LCAAP-017	LANDFILL	30	12	2000	2007-08	0	0	0	0	0	0	0	0	2909	8729	11638	LF-CAP-TD-SO
LCAAP-030	SURFACE DISPOSAL AREA	15		2007	2008	0	0	0	0	0	0	0	0	0	1081	1081	SOL
LCAAP-031	LANDFILL		5	2002	2002	0	0	0	1692	0	0	0	0	0	81	1773	CAP

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
LETTERKENNY ARMY DEPOT																	
LEAD-036	LANDFILL	0.35		1999	1999,01	0	0	400	0	0	0	0	0	0	0	400	STAB-LF
LEAD-060	STORAGE AREA	2.75		2000	2000	0	250	0	0	0	0	0	0	0	0	250	SOL-LF
LEAD-093	BURN AREA		15	1999	1999	1792	0	0	0	0	0	0	0	0	0	1792	CAP
LEXINGTON FACILITY-LBAD																	
LEX-001	WASTE TREATMENT PLANT	2		2004	2005	0	0	0	0	0	0	357	0	0	0	357	LF
LEX-002	STORM DRAIN	5		1999	2000	0	258	0	0	0	0	0	0	0	0	258	LF
LEX-019	DISPOSAL PIT/DRY WELL	0.5		1999	1999	86	0	0	0	0	0	0	0	0	0	86	LF
LEX-024	CONTAMINATED BUILDING	3.5		2001	2002	0	444	150	1403	0	0	300	0	0	0	2297	LF
LEX-028	STORAGE AREA	0.6		2001	2002	0	0	0	393	0	0	0	0	0	0	393	LF
LEX-029	STORAGE AREA	0.29			1999	51	0	0	0	0	0	0	0	0	0	51	LF
LEX-046	SURFACE DISPOSAL AREA	1.26			2000	0	200	0	0	0	0	0	0	0	0	200	LF
LEX-048	SURFACE DISPOSAL AREA	1.12			2001	0	0	200	0	0	0	0	0	0	0	200	LF
LEX-057	STORAGE AREA	1.6		1999	2000-02	0	200	50	800	0	0	0	0	0	0	1050	LF
LEX-058	SURFACE RUNOFF	5.58		2000	2001	0	0	1035	0	0	0	0	0	0	0	1035	LF
LEX-059	STORAGE AREA	3.38		2000	2002,05	0	0	0	249	0	0	400	0	0	0	649	LF
LEX-072	CONTAMINATED BUILDING	0.5		1999	1999	86	0	0	0	0	0	0	0	0	0	86	LF
LEX-074	DRAINAGE DITCH	0.2		1999	1999	209	0	0	0	0	0	0	0	0	0	209	LF
LINCOLN AMSA 68																	
SITE 4	SURFACE DISPOSAL AREA	1		2008	2008	0	0	0	0	0	0	0	0	0	250	250	LF
LONE STAR AAP																	
LSAAP-002	LANDFILL		30	2000	2001	0	0	1029	0	0	0	0	0	0	0	1029	CAP
LSAAP-016	BURN AREA	6.25		2002	2003	0	0	0	0	925	0	0	0	0	0	925	LF
LSAAP-017	EXPLOSIVE ORDNANCE DI		17		1999	969	0	0	0	0	0	0	0	0	0	969	CAP
LSAAP-018	EXPLOSIVE ORDNANCE DI	1.5		2002	2003	0	0	0	0	773	0	0	0	0	0	773	LF
LSAAP-055	BURN AREA	1.3		2000	2001	0	0	772	0	0	0	0	0	0	0	772	LF
LSAAP-075	CONTAMINATED GROUND	1.1		2002	2003	0	0	0	0	154	0	0	0	0	0	154	LF
LSAAP-201	INDUSTRIAL DISCHARGE	2.45		2000	2001	0	0	758	0	0	0	0	0	0	0	758	LF
LONGHORN AAP																	
LHAAP-016	LANDFILL	2.2		2002	2005-07	0	0	0	0	0	0	2000	2000	1803	0	5803	LF
LOS ALAMITOS ARMED FORCES RES. CTR																	
LAAFRC-005	SMALL ARMS RANGE	0.1		2001	2001	0	0	98	0	0	0	0	0	0	0	98	LF
MCALESTER AAP																	
MCAAP-018	SURFACE IMPOUNDMENT/	1.16		1999	1999	71	0	0	0	0	0	0	0	0	0	71	LF
MCAAP-026	BURN AREA	10		1999	1999	1702	1	0	0	0	0	0	0	0	0	1703	LF
MCAAP-045	SPILL SITE AREA			1999	1999	37	0	0	0	0	0	0	0	0	0	37	LF
MILITARY OCEAN TERMINAL, BAYONNE																	
LF	CONTAMINATED SEDIMEN		12.2	2000	2003	0	0	0	0	5423	0	0	0	0	0	5423	CAP
LOT 100N	CONTAMINATED SEDIMEN	0.2		2001	2002	0	0	0	79	0	0	0	0	0	0	79	LF
LOT 100P	CONTAMINATED SEDIMEN	1.4		2001	2002	0	0	0	248	0	0	0	0	0	0	248	LF
LOT 101	PESTICIDE SHOP	1.26		1999	2000	0	223	0	0	0	0	0	0	0	0	223	LF
LOT 103	CONTAMINATED SEDIMEN	1.4		2001	2002	0	0	0	248	0	0	0	0	0	0	248	LF
RCY	CONTAMINATED SEDIMEN	2.9		2000	2001	0	0	661	0	0	0	0	0	0	0	661	LF
NATIONAL GUARD FACILITY, REHOBOTH																	
RNGF-02	SPILL SITE AREA	0.15			2000	0	145	0	0	0	0	0	0	0	0	145	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
NEWPORT CHEMICAL ACTIVITY																	
NAAP-014	SPILL SITE AREA	3.5		2008	2008	0	0	0	0	0	0	0	0	0	696	696	LF
NAAP-033	LANDFILL	2		2008	2008	0	0	0	0	0	0	0	0	0	373	373	LF
NAAP-040	CONTAMINATED BUILDING	2			2008	0	0	0	0	0	0	0	0	0	373	373	LF
NIKE KANSAS CITY 30																	
KC30-01	SURFACE DISPOSAL AREA	0.25			2002	0	0	0	55	0	0	0	0	0	0	55	SOL-LF
KC30-02	STORAGE AREA	0.25			2002	0	0	0	55	0	0	0	0	0	0	55	SOL-LF
KC30-07	SMALL ARMS RANGE	0.2			2003	0	0	0	0	45	0	0	0	0	0	45	LF
KC30-10	WASTE TREATMENT PLANT	4		2008	2004	0	0	0	0	0	628	0	0	0	0	628	SOL-LF
OAKLAND ARMY BASE																	
OARB000005	CONTAMINATED GROUND	3.2		2000	2001	0	0	1030	0	0	0	0	0	0	0	1030	LF
PHOSPHATE DEV WORKS																	
PDW-028	DISPOSAL PIT/DRY WELL	1		1999	2000	0	130	0	0	0	0	0	0	0	0	130	STAB-LF
PRESIDIO OF SAN FRANCISCO																	
PRES-16	SMALL ARMS RANGE	3			1999	513	0	0	0	0	0	0	0	0	0	513	LF
PRES-28	LANDFILL 4				2000	0	38	0	0	0	0	0	0	0	0	38	INST
PRES-30	UNEXPLODED MUNITIONS/	0.25			2000	0	170	0	0	0	0	0	0	0	0	170	STAB-LF
PRES-31	LANDFILL		4	1999	2000	0	0	0	0	0	0	943	0	0	0	943	CAP
PRES-33		0.21		1999	2000	0	142	0	0	0	0	0	0	0	0	142	SOL-LF
PUEBLO CHEMICAL DEPOT																	
PUADA-002	BURN AREA	9		2000	2000-02	0	0	500	572	0	0	0	0	0	0	1072	LF
PUADA-004	BURN AREA	2			2003-05	0	0	0	0	0	0	441	0	0	0	441	LF
PUADA-052	CONTAMINATED BUILDING	0.4		2000	2001	0	0	152	0	0	0	0	0	0	0	152	LF
PUADA-054	STORAGE AREA	0.8		2000	2001	0	0	106	0	0	0	0	0	0	0	106	LF
PUADA-056	DISPOSAL PIT/DRY WELL	8		2000	2001	0	0	992	0	0	0	0	0	0	0	992	LF
RADFORD AAP																	
RAAP-002	BURN AREA	1		2002	2002	0	0	0	158	0	0	0	0	0	0	158	SOL-LF
RAAP-010	LANDFILL	50		2004	2005-06	0	0	0	0	0	0	1513	1004	0	0	2517	LF
RAAP-014	LANDFILL	6.85			1999	1338	0	0	0	0	0	0	0	0	0	1338	SOL-LF
RAAP-016	LANDFILL	9.7	2	2000	2002	0	0	0	2411	0	0	0	0	0	0	2411	LF-CAP
RAAP-017	LANDFILL		10		2008	0	0	0	0	0	0	0	0	0	2529	2529	CAP
RAAP-028	LANDFILL	0.2			2004	0	0	0	0	0	22	0	0	0	0	22	LF
RAAP-030	BURN AREA	29.6	1.81	2004	2008	0	0	0	0	0	0	0	0	0	5468	5468	LF-CAP
RAAP-040	CONTAMINATED SOIL PILES	3		2000	2001	0	0	458	0	0	0	0	0	0	0	458	LF
RAAP-044	STORAGE AREA	9		2001	2001	0	0	1570	0	0	0	0	0	0	0	1570	LF
RAAP-045	PLATING SHOP	0.6		2000	2000	0	751	0	0	0	0	0	0	0	0	850	LF
RAVENNA AAP																	
RVAAP-26	UNDERGROUND STORAGE	4.84		2008	2008	0	0	0	0	0	0	0	0	0	944	944	LF
RVAAP-29	SURFACE IMPOUNDMENT/	14.52		2008	2008	0	0	0	0	0	0	0	0	0	2834	2834	LF
RVAAP-32	FIRING RANGE	2		2008	2008	0	0	0	0	0	0	0	0	0	2649	2148	STAB-LF
RVAAP-36	PISTOL RANGE	1.34		2008	2008	0	0	0	0	0	0	0	0	0	261	261	LF
RVAAP-38		20		2008	2008	0	0	0	0	0	0	0	0	0	3904	3904	LF
RED RIVER ARMY DEPOT																	
RRAD-06	SPILL SITE AREA	0.17		2000	2001	0	0	30	0	0	0	0	0	0	0	30	LF
RRAD-30	SPILL SITE AREA	0.64		2000	2001	0	0	110	0	0	0	0	0	0	0	110	SOL-LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
RRAD-37	SPILL SITE AREA	0.25		2000	2001	0	0	41	0	0	0	0	0	0	0	41	SOL-LF
RRAD-60	SPILL SITE AREA	0.75		2000	2001	0	0	1064	0	0	0	0	0	0	0	1064	SOL-LF-RBW
RRAD-62	SPILL SITE AREA	0.5		2000	2001	0	0	92	0	0	0	0	0	0	0	92	LF
RRAD-63	SPILL SITE AREA	0.06		2000	2001	0	0	62	0	0	0	0	0	0	0	62	SOL-LF
RRAD-93	SURFACE DISPOSAL AREA	0.27		1999	1999	75	0	0	0	0	0	0	0	0	0	75	LF
REDSTONE ARSENAL																	
MSFC-003	SURFACE DISPOSAL AREA		3	2006	2007	0	0	0	0	0	0	0	0	1399	0	1399	CAP
RSA-005	STORAGE AREA	1.5	3	1999	1999	1248	0	0	0	0	0	0	0	0	0	1248	STAB-LF-CAP
RSA-008	SEWAGE TREATMENT PLAN	0.1		2006	2007	0	0	0	0	0	0	0	0	90	0	90	STAB-LF
RSA-010	LANDFILL		25	2001	2001-03	0	0	982	4670	173	0	0	0	0	0	5825	CAP-SLW
RSA-048	INACTIVE CLOSED SANITARY		6		1999	0	0	0	0	0	0	0	0	0	0	0	INST
RSA-051	SURFACE DISPOSAL AREA		1.5	2006	2007	0	0	0	0	0	0	0	0	679	0	679	CAP
RSA-052	UNEXPLODED MUNITIONS/		36	2003	2004-05	0	0	0	0	0	6784	6000	0	0	0	12784	CAP-SLW
RSA-053	LANDFILL		50	2005	2006-08	0	0	0	0	0	0	0	4019	3029	6000	13048	CAP-SLW
RSA-056	SURFACE IMPOUNDMENT/		5	2003	2004	0	0	0	0	0	1121	0	0	0	0	1121	CAP
RSA-057	SURFACE DISPOSAL AREA		3	2004	2008	0	0	0	0	0	0	0	0	0	656	656	CAP
RSA-058	LANDFILL		16	2000	2000-01	0	4453	4058	0	0	0	0	0	0	0	8511	CAP
RSA-59	INACTIVE CLOSED CONST		13		2006	0	0	0	0	0	0	0	0	0	0	0	INST
RSA-060	LANDFILL		25	2002	2003-04	0	0	0	0	2661	3000	0	0	0	0	5661	CAP
RSA-061	UNEXPLODED MUNITIONS/		14	2003	2003-04	0	0	0	0	783	2354	0	0	0	0	3137	CAP
RSA-062	UNEXPLODED MUNITIONS/		15	2002	2003	0	0	0	0	3380	0	0	0	0	0	3380	CAP
RSA-063	UNEXPLODED MUNITIONS/		5	2002	2003	0	0	0	0	1143	0	0	0	0	0	1143	CAP
RSA-65	FORMER CHEMICAL DRU		367	2006	2007	0	0	0	0	0	0	0	0	315	0	315	INST
RSA-066	SURFACE DISPOSAL AREA	2		2001	2002-03	0	0	0	0	802	0	0	0	0	0	802	LF
RSA-67	FORMER CHEMICAL DRU		367	2006	2007	0	0	0	0	0	0	0	0	315	0	315	INST
RSA-068	SURFACE DISPOSAL AREA		5	2003	2004-06	0	0	0	0	0	2061	4606	1866	0	0	8533	CAP-SLW
RSA-114	SURFACE IMPOUNDMENT/	10		2000	2000-01	0	0	1740	0	0	0	0	0	0	0	1740	SOL-LF
RSA-129	DISPOSAL PIT/DRY WELL	0.1		2000	2000	0	84	0	0	0	0	0	0	0	0	84	STAB-LF
ROCK ISLAND ARSENAL																	
RIA-001	LANDFILL		14		2001	0	0	6123	0	0	0	0	0	0	0	6123	CAP-SLW
ROCKY MOUNTAIN ARSENAL																	
CSA-1C	DISPOSAL PIT/DRY WELL		23.5		1999-05	5000	1000	1000	1000	9000	20940	27	0	0	0	37967	CAP
ESA-2A	BURN AREA	12			1999-03	1880	754	0	0	0	0	0	0	0	0	2634	LF
NCSA-1A	SURFACE DISPOSAL AREA		10		1999-07	390	390	390	390	390	390	390	390	390	0	3510	CAP
NCSA-1B	SURFACE DISPOSAL AREA	2			1999-03	550	550	550	3146	54	0	0	0	0	0	4850	LF
NCSA-1E	BURN AREA		1.4		1999-07	390	390	390	390	390	390	390	390	390	0	3510	CAP
NPSA-5	SPILL SITE AREA	0.2			1999-04	91	91	91	91	850	18	0	0	0	0	1232	LF
NPSA-6	SPILL SITE AREA	0.05			1999-04	91	91	91	91	850	18	0	0	0	0	1232	LF
NPSA-9F	SPILL SITE AREA	0.3			1999	509	0	0	0	0	0	0	0	0	0	509	LF
SPSA-10	WASTE LINES	18			1999-03	41	431	546	601	4	0	0	0	0	0	1623	LF
SPSA-1A	SPILL SITE AREA	18			1999-03	1320	1254	6789	6926	39	0	0	0	0	0	16328	LF-CAP
SPSA-1E	DISPOSAL PIT/DRY WELL	26			1999-01	1790	1790	24951	0	0	0	0	0	0	0	28531	SOL-LF
SPSA-1G	SPILL SITE AREA	15			1999-02	41	431	546	601	4	0	0	0	0	0	1623	LF
SPSA-3C	ABOVE GROUND STORAG	5			1999-02	41	431	546	601	4	0	0	0	0	0	1623	LF
WSA-3C	LANDFILL	0.5			1999-00	1372	1291	0	0	0	0	0	0	0	0	2663	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
WSA-5D	LANDFILL	4			1999-00	1372	1291	0	0	0	0	0	0	0	0	2663	LF
WSA-6A	DISPOSAL PIT/DRY WELL	1.1			1999	346	0	0	0	0	0	0	0	0	0	346	LF
SAVANNA DEPOT ACTIVITY																	
SVAD-007	BURN AREA	14		1999	2000	0	3029	0	0	0	0	0	0	0	0	3029	LF
SVAD-013	BURN AREA	100	270	1999-01	1999-05	7610	8000	7535	11495	11500	7500	6092	0	0	0	59732	TD-SOL-CAP
SVAD-014	BURN AREA	15		1999	2000	0	485	0	0	0	0	0	0	0	0	485	LF
SVAD-015	BURN AREA	15		1999	2000	0	6334	0	0	0	0	0	0	0	0	6334	SOL-LF
SVAD-033	BURN AREA	70		1999	2000-01	0	3000	3270	0	0	0	0	0	0	0	6270	SOL-LF
SVAD-73	LANDFILL		7.5		1999-00	2049	2172	0	0	0	0	0	0	0	0	4221	CAP
SENECA AD																	
SEAD-012	RADIOACTIVE WASTE AREA	37.06		2000	2001	0	6489	0	0	0	0	0	0	0	0	6489	LF
SIERRA ARMY DEPOT																	
SIAD-002	DISPOSAL PIT/DRY WELL	1.1		1999	1999-01	0	344	0	0	0	0	0	0	0	0	344	LF
SIAD-020	1960 DEMOLITION AREA		367	1999	2000	0	0	0	0	0	0	0	0	0	0	0	INST
SIAD-022	EXPLOSIVE ORDNANCE DI	14.7		2000	2001	0	0	2386	0	0	0	0	0	0	0	2386	STAB-LF
SUNFLOWER AAP																	
SAAP-001	SPILL SITE AREA	0.04		2000	2001	0	0	7	0	0	0	0	0	0	0	7	LF
SAAP-002	SURFACE IMPOUNDMENT/	0.04		2008	2008	0	0	0	0	0	0	0	0	0	7	7	LF
SAAP-003	WASTE TREATMENT PLANT	0.48		2000	2002	0	0	0	67	0	0	0	0	0	0	67	LF
SAAP-004	SURFACE IMPOUNDMENT/	3.7		2008	2008	0	0	0	0	0	0	0	0	0	260	260	SOL
SAAP-005	WASTE TREATMENT PLANT	1.9		2000	2001-03	0	0	90	155	100	0	0	0	0	0	345	SOL
SAAP-006	SURFACE IMPOUNDMENT/		9	2008	2008	0	275	1000	0	0	0	0	0	0	79	1354	CAP
SAAP-010	SURFACE DISPOSAL AREA	10		1999	1999-01	339	750	354	0	0	0	0	0	2832	2889	7164	VIT
SAAP-014	CONTAMINATED BUILDING	0.03		2000	2001	0	0	6	0	0	0	0	0	0	0	6	SOL-LF
SAAP-024	SPILL SITE AREA	0.63			2006	0	0	0	0	0	0	0	115	0	0	115	LF
SAAP-032	CONTAMINATED BUILDING	0.33		2002	2000-01	0	40	0	0	0	0	0	0	0	0	40	SOL
SAAP-033	SURFACE DISPOSAL AREA	0.1	0.1	2001	2003	0	0	139	0	0	0	0	0	0	0	139	INC-CAP
SAAP-034	SURFACE IMPOUNDMENT/	0.2		2004	2005	0	0	0	0	0	0	98	5	0	0	103	INC
SAAP-035	SURFACE IMPOUNDMENT/	0.37	0.1	2007	2007	0	0	0	0	0	0	0	0	154	0	154	INC-CAP
SAAP-036	SURFACE DISPOSAL AREA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	22	22	LF
SAAP-047	CONTAMINATED SEDIMEN		17	1999	99,01-02	592	0	500	427	0	0	0	0	0	0	1519	CAP-BV
SAAP-050	LANDFILL		2	1999	1999,03-04	108	0	0	0	7	7	0	0	0	0	122	CAP
TOOELE ARMY DEPOT																	
TEAD-04	BRAC SANDBLAST AREA				1999	19	0	0	0	0	0	0	0	0	0	19	INST
TEAD-05	BURN AREA	4.45		2000	2000	0	614	0	0	0	0	0	0	0	0	614	SOL-STAB
TEAD-09	LANDFILL		100	2000	2008	0	0	0	0	0	0	0	0	0	27067	27067	CAP
TEAD-11	X-RAY LAGOON				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-16	FIRING RANGE	0.36		2000	2000	0	67	0	0	0	0	0	0	0	0	67	SOL-STAB
TEAD-20	BRAC-DRMO STORAGE				1999	19	0	0	0	0	0	0	0	0	0	19	INST
TEAD-28	OLD BURN STAGING				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-34	BLDG 1303 WASHOUT				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-35	DEACT FURNACE				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-36	UNEXPLODED MUNITIONS/	0.48		2000	2001	0	0	161	0	0	0	0	0	0	0	161	LF
TEAD-37	INCINERATOR	0.9		2000	2002	0	0	0	198	0	0	0	0	0	0	198	LF
TEAD-50	SURFACE DISPOSAL AREA	0.7		2000	2002	0	0	0	130	0	0	0	0	0	0	130	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
TEAD-54	PESTICIDE MIXING				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-58	CONTAMINATED SOIL PILES	50		1999	2001-03	0	0	3103	3103	3103	0	0	0	0	0	9309	LF
TEAD-83	STORMWTR DISCHARGE				2000	0	6	0	0	0	0	0	0	0	0	6	INST
TEAD-90	CONTAMINATED SOIL PILES	1.8		1999	2000	0	426	0	0	0	0	0	0	0	0	426	LF
TEAD-93	BRAC-GRAVEL PIT				1999	19	0	0	0	0	0	0	0	0	0	19	INST
TEAD-94	SMALL ARMS RANGE	6.29		1999	1999	1422	0	0	0	0	0	0	0	0	0	1422	LF
TWIN CITIES AAP																	
TCAAP-01	CONTAMINATED GROUND	0.6		1999	2000	8	814	0	0	0	0	0	0	0	0	822	STAB-LF
TCAAP-05	BURN AREA	9.25			2000	0	4236	0	0	0	0	0	0	0	0	4236	LF
TCAAP-07	CHEMICAL DISPOSAL	14.6			1999	3502	0	0	0	0	0	0	0	0	0	3502	LF
TCAAP-10	BURN AREA	11			1999	2681	0	0	0	0	0	0	0	0	0	2681	LF
TCAAP-11	DISPOSAL PIT/DRY WELL	1.5			2000	0	340	0	0	0	0	0	0	0	0	340	LF
TCAAP-12	BURN AREA	0.6			1999	133	0	0	0	0	0	0	0	0	0	133	LF
TCAAP-20	FIRING RANGE	5.3			2001	0	0	1185	0	0	0	0	0	0	0	1185	LF
TCAAP-21	FIRING RANGE	2.9			2000	0	640	0	0	0	0	0	0	0	0	640	LF
USARC BROCKTON (AMSA 66)																	
SITE 14	CONTAMINATED SEDIMENT	0.3		2005	2005	0	0	0	0	0	0	75	0	0	0	75	LF
USARC CHURCHLAND (PORTSMOUTH)																	
SITE 03	LEACH FIELD	0.3		2008	2008	0	0	0	0	0	0	0	0	0	50	50	LF
USARC CURTIS BAY (AMSA 83)																	
SITE 07	LEACH FIELD	0.38		2008	2008	0	0	0	0	0	0	0	0	0	75	75	LF
USARC FORT NATHANIEL GREENE																	
SITE 7	FIRING RANGE	1		2008	2008	0	0	0	0	0	0	0	0	0	250	250	LF
SITE 8	SURFACE DISPOSAL AREA	1		2008	2008	0	0	0	0	0	0	0	0	0	255	255	LF
USARC HAMPTON																	
SITE 2	LEACH FIELD	0.3		2008	2008	0	0	0	0	0	0	0	0	0	50	50	LF
USARC LIMA (AMSA 58 SUB 1)																	
SITE 03	WASHRACK	0.64		2008	2008	0	0	0	0	0	0	0	0	0	124	124	LF
USARC PASADENA, CA																	
SITE 03	MAINTENANCE YARD	0.2		2008	2008	0	0	0	0	0	0	0	0	0	50	50	LF
USARC SAN JOSE (AMSA 12)																	
SITE 01	OIL WATER SEPARATOR	5		2008	2008	0	0	0	0	0	0	0	0	0	1215	1215	LF
USARC VALLEJO																	
SITE 01	OIL WATER SEPARATOR	0.86		2008	2008	0	0	0	0	0	0	0	0	0	215	215	LF
SITE 02	MAINTENANCE YARD	0.2		2008	2008	0	0	0	0	0	0	0	0	0	50	50	LF
USARC WESTMINSTER																	
SITE 01	LEACH FIELD	0.25		2008	2008	0	0	0	0	0	0	0	0	0	50	50	LF
USARC WHEELING																	
SITE 02	WASHRACK	0.12			2008	0	0	0	0	0	0	0	0	0	25	25	LF
VOLUNTEER AAP																	
VAAP-01	SPILL SITE AREA	1.5		1999	2001	0	0	1411	0	0	0	0	0	0	0	1411	STAB-LF
VAAP-02	SPILL SITE AREA	5.8			2008	0	0	0	0	0	0	0	0	0	5470	5470	STAB-LF
VAAP-32	SPILL SITE AREA	12		1999	2003-06	0	0	0	0	2795	2795	2795	2796	0	0	11181	STAB-LF
WAIAWA GULCH																	
WG-02	DRAINAGE DITCH	0.12		1999	1999	128	0	0	0	0	0	0	0	0	0	128	LF

Table A-1. Sites with Metals-Contaminated Soil That Will Be Remediated for Metals

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99 (K$)	FY00 (K$)	FY01 (K$)	FY02 (K$)	FY03 (K$)	FY04 (K$)	FY05 (K$)	FY06 (K$)	FY07 (K$)	FY08 (K$)	TOTAL RA COST (K$)	TREAT TECH
WATERVLIET ARSENAL																	
WVAA-30	INDUSTRIAL DISCHARGE	3.7			2000-02	0	100	300	150	0	0	0	0	0	0	550	SOL
WHITE SANDS MISSILE RANGE																	
WSMR-09	MIXED WASTE AREA	1.65			1999-00	250	24	0	0	0	0	0	0	0	0	274	LF
YUMA PROVING GROUND																	
YPG-13B	WASHRACK	0.03			2000	0	6	0	0	0	0	0	0	0	0	6	LF
Totals		2285	2860.7			71.19	73.99	98.51	66.52	71.27	82.63	50.66	41.27	37.93	444.9	1038	

Appendix B

Sites With Metals-Contaminated Soil That Will Be Treated for Metals by a Technology Better Suited for Other Contaminants

Appendix B

Sites With Metals-Contaminated Soil That Will Be Treated for Metals by a Technology Better Suited for Other Contaminants

Sites listed in this appendix have metals-contaminated soil that is scheduled for cleanup by either thermal desorption or incineration. Since these technologies are better suited for treating soil contaminated with organic chemicals, they were not included in Appendix A, Sites With Metals-Contaminated Soil That Will Be Remediated for Metals. Sites where these thermal treatments are being proposed in conjunction with other technologies consistent with metal contaminants are in Table A-1. CTC databases provided estimates of soil volumes, dates for RD, dates for RA, funding budgets, and proposed cash flows. Only those costs associated with treatment of soil by incineration or thermal desorption were included in Table B-1. All information was taken from 1998 CTC data that was constrained.

Table B-1. Sites with Metals-Contaminated Soil that Will Be Treated for Metals by a Technology Better Suited for Other Contaminants

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	TOTAL RA COST	TREAT TECH
ABERDEEN PROVING GROUND																	
EACC1A-B	SURFACE DISPOSAL	2		2008	2008	0	0	0	0	0	0	0	0	0	1148	1148	INC
EACC1H-A	DISPOSAL PIT/DRY V	2		2008	2008	0	0	0	0	0	0	0	0	0	1154	1154	INC
EACC1H-B	INDUSTRIAL DISCHA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	144	144	INC
EACC1H-F	INDUSTRIAL DISCHA	0.5		2008	2008	0	0	0	0	0	0	0	0	0	288	288	INC
EACC1H-G	INDUSTRIAL DISCHA	0.5		2008	2008	0	0	0	0	0	0	0	0	0	288	288	INC
EACC2B	INDUSTRIAL DISCHA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	144	144	INC
EACC2E	INCINERATOR	1		2008	2008	0	0	0	0	0	0	0	0	0	2921	2921	INC
EACC2F	INDUSTRIAL DISCHA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	144	144	INC
EACC3A	DISPOSAL PIT/DRY V	1			2008	0	0	0	0	0	0	0	0	0	598	598	INC
EACC3G	INDUSTRIAL DISCHA	0.25		2008	2008	0	0	0	0	0	0	0	0	0	144	144	INC
EACC3L	INDUSTRIAL DISCHA	0.25		2004	2004	0	0	0	0	0	144	0	0	0	0	144	INC
EAGQ01-I	CHEMICAL DISPOSA	0.01				3	0	0	0	0	0	0	0	0	0	3	INC
EAWW10-E	SURFACE IMPOUND	1.2		2004	2008	0	0	0	0	0	0	0	0	0	437	437	TD
BLUE GRASS FACILITY-LBAD																	
BLGR-059	EXPLOSIVE ORDNAN	2		2000	2001	0	0	1100	0	0	0	0	0	0	0	1100	INC
CAMP NAVAJO																	
NAAD-E76	EXPLOSIVE ORDNAN	1		2005	2006	0	0	0	0	0	0	0	2440	0	0	2440	INC
CORNHUSKER AAP																	
CAAP-003	LANDFILL	0.04		1999	1999	93	0	0	0	0	0	0	0	0	0	93	INC
FORT BLISS																	
FTBL-022	SURFACE IMPOUNDMENT/	2		2004	2008	0	0	0	0	0	0	0	0	0	3017	3017	TD
FORT BRAGG																	
FTBR-069	STORAGE AREA	2		1999	2001-03	0	0	250	75	175	0	0	0	0	0	500	INC
FORT CAMPBELL																	
FCPB-52	DISPOSAL PIT/DRY V	8.11			2001-04	0	0	400	1100	2200	703	0	0	0	0	4403	TD
FORT JACKSON																	
FTJA-23	UNEXPLODED MUNI	0.4		2004	2005	0	0	0	0	0	0	228	0	0	0	228	TD
FORT MCCLELLAN																	
FTMC-27	CHEMICAL DISPOSA	15		2008	2008	0	0	0	0	0	0	0	0	0	6789	6789	INC
FTMC-29	CHEMICAL DISPOSA	0.4			2000	0	181	0	0	0	0	0	0	0	0	181	INC
FORT MCNAIR																	
FTMCN-08	CONTAMINATED FIL	0.9			1999-00	500	500	0	0	0	0	0	0	0	0	1000	INC
INDIANA AAP																	
INAAP-05	SURFACE IMPOUND	7.4		2007	2008	0	0	0	0	0	0	0	0	0	2548	2548	TD
INAAP-54		20.5		2002	2003-04	0	0	0	0	3242	3243	0	0	0	0	6485	TD
INAAP-89	CONTAMINATED SE	150		2008	2008	0	0	0	0	0	0	0	0	0	47456	47456	TD
KANSAS AAP																	
KAAP-10	BURN AREA	4.64		2000	2004	0	0	0	0	0	1161	0	0	0	0	1161	TD

Table B-1. Sites with Metals-Contaminated Soil that Will Be Treated for Metals by a Technology Better Suited for Other Contaminants

SITENAME	DESCRIPT	QTY KCY	QTY AC	RD YEAR	RA YEAR	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	TOTAL RA COST	TREAT TECH
KAAP-16	INDUSTRIAL DISCHA	10		2002	2008	0	0	0	0	0	0	0	0	0	2417	2417	TD
KAAP-17	INDUSTRIAL DISCHA	15		2000	2008	0	0	0	0	0	0	0	0	0	3707	3707	TD
KAAP-19	INDUSTRIAL DISCHA	20		2008	2008	0	0	0	0	0	0	0	0	0	4959	4959	TD
KAAP-20	INDUSTRIAL DISCHA	30		2000	2001,06	0	0	3500	0	0	0	0	3914	0	0	7414	INC
KAAP-21	INDUSTRIAL DISCHA	30		2000	03;07-08	0	0	0	0	3000	0	0	0	2245	2169	7414	INC
KAAP-22	INDUSTRIAL DISCHA	30		2004	02-03;08	0	0	0	2710	790	0	0	0	0	3914	7414	INC
KAAP-37	EXPLOSIVE ORDNAN	0.55		2008	2008	0	0	0	0	0	0	0	0	0	417	417	TD
LAKE CITY AAP																	
LCAAP-035	CONTAMINATED FIL	2			1999-2001	589	2449	412	0	0	0	0	0	0	0	3450	INC
PINE BLUFF ARSENAL																	
PBA-11	CONTAMINATED BU	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11A	SURFACE IMPOUND	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11B	SURFACE IMPOUND	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11C	SURFACE IMPOUND	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11D	LANDFILL	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11E	LANDFILL	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
PBA-11F	LANDFILL	0.1		2000	2000	0	154	0	0	0	0	0	0	0	0	154	INC
RAVENNA AAP																	
RVAAP-04	UNEXPLODED MUNI	1.37		2005	2006	0	0	0	0	0	0	0	601	0	0	601	INC
RED RIVER ARMY DEPOT																	
RRAD-71	SPILL SITE AREA	0.07		2000	2002	0	0	0	74	0	0	0	0	0	0	74	INC
SAVANNA DEPOT ACTIVITY																	
SVAD-074	SURFACE DISPOSAL	20		2000	2001-02	0	0	2554	2000	0	0	0	0	0	0	4554	TD
SENECA AD																	
SEAD-004	SURFACE DISPOSAL	8.6		2000	2001-02	0	0	2000	2981	0	0	0	0	0	0	4981	INC
SEAD-013	DISPOSAL PIT/DRY V	9.4		2001	2002-03	0	0	0	2000	2405	0	0	0	0	0	4405	INC
SEAD-045	EXPLOSIVE ORDNAN	5		2001	2002-03	0	0	0	2000	2426	0	0	0	0	0	4426	TD
SEAD-059	CONTAMINATED FIL	11.4		1999	2000	0	5499	0	0	0	0	0	0	0	0	5499	TD
SIERRA ARMY DEPOT																	
SIAD-010	BURN AREA	0.12		2000	2000	0	80	0	0	0	0	0	0	0	0	80	TD
SUNFLOWER AAP																	
SAAP-011	SURFACE IMPOUND	2.07		1999	2001	583	750	0	0	0	0	0	167	0	1009	2509	INC
SAAP-021	BURN AREA	4.5		2001	2003	0	0	0	0	1132	0	0	0	0	0	1132	TD
SAAP-026	CONTAMINATED SE	0.03		2007	2008	0	0	0	0	0	0	0	0	0	28	28	INC
WATERVLIET ARSENAL																	
WVAA-25	MAINTENANCE YARI	0.12			1999-00	230	10	0	0	0	0	0	0	0	0	240	INC

Appendix C

Sites With Proposed Remedial Actions That Will Have No Effect on Metals Contamination in Soil or Sediment

Appendix C

Sites With Proposed Remedial Actions That Will Have No Effect on Metals Contamination in Soil or Sediment

The *Site Action Items Database* was used to determine proposed remedial activities for those sites identified with metals-contaminated soil. Sites for which proposed remedial actions involved only groundwater or where the soil treatment would have no effect on metal contaminants were placed in Table C-1. Also, sites for which the proposed treatment did not involve soil were placed in Table C-1. The basis for including these sites in Table C-1 are shown in the table.

The rationale shown below is based on the *Remedial Technologies Screening Matrix and Reference Guide* (USAEC, 1997). The following codes are used to describe why sites were eliminated:

GW: The *Site Action Item Database* indicates that the remediation will only involve groundwater treatment with no treatment of soil.

BV: Bioventing is given as the remedial action. This treatment will have no effect on metal contaminants in soil.

SVE: Soil vapor extraction is given as the remedial action. This treatment is not consistent with metals contamination.

NM: Non-metals refers to activities such as building demolition, debris removal, or treatment of organic contaminants such as PCBs.

BIO: Biological treatments are not consistent with metals contamination.

UXO: This refers to activities such as UXO removal or UXO survey. Unexploded ordnance were not a part of this study.

RVW: Discussions with POCs revealed that no further action is planned for the site or no actions planned involve metal contaminants.

NFA: No further action is planned for the site.

COMP: Composting is the only remedial technology given for the site.

Table C-1. Sites with Proposed Remedial Actions that Will Have No Effect on Metal Contamination in Soil or Sediment

SITE NAME	DESCRPTN	GW Only	BV	SVE	NM	BIO	UXO	RVW	NFA	COMP
ABERDEEN PROVING GROUND										
EACC1A-B	G STREET SALVAGE YARD-CLUSTER 1A	x								
EACC2F	BLDG 99 (E5032) EXP FILLING PNT-CLU 2F	x								
EAGQ01-1	CHEMICAL WASTE DISPOSAL PIT					x				
EAJF05	TOXIC BURNING PIT						x			
EAJF05-A	TBP-SOUTHERN MAIN PITS OVERALL						x			
ALTAMAHU MILITARY RESERVATION										
ALMR-01	AMMUNITION STORAGE BUNKERS (154)				x					
ANNISTON ARMY DEPOT										
ANAD-07	CHEMICAL WASTE DISPOSAL PIT	x								
ANAD-12	FACILITY 414 (OLD LAGOONS)	x								
ANAD-22	A-BLOCK LAGOON (FACILITY 514)	x								
ANAD-29	OLD LUMBER DISPOSAL YARD,(NEAR BLDG 573)	x								
ANAD-30	NORTHEAST LAGOON AREA	x								
ARDEC (PICATINNY ARSENAL)										
PICA-093	WASTE BURIAL AREA NEAR SITES 19&34(180)	x								
PICA-118	METALLURGY LAB, BLDG 315 (SITE 135)	x								
C.E. KELLY SUPPORT FACILITY										
SITE 05	VEHICLE MAINTENANCE (SITE 63, LAUNCH)	x								
CAMP NAVAJO										
NAAD-07	TNT RETENTION PONDS						x			
NAAD-43	FORMER CONSTR. DEBRIS LF(WAREHOUSE AREA)		x							
DESERET CHEMICAL DEPOT										
TEAD(S)-12	CAMDS SITE (SWMU 13)		x							
FLORENCE MILITARY RESERVATION										
FMR-05	FORMER LANDFILL	x								
FORT CARSON										
FTC-021	ABANDONED FIRE TRAINING AREA			x						
FORT DRUM										
FTD-030	UNDERGROUND STORAGE TANK							x		
FORT EUSTIS										
FTEUST-29	BROWN'S LAKE				x					
FORT GORDON										
FTGD-006A	SITE UPGRADIENT TO SWMU 006	x								
FORT JACKSON										
FTJA-08	FORMER PCB STG BLD 2668	x								
FTJA-10	INACTIVE WONSON OB/OD GROUND	x								
FORT LEAVENWORTH										
FTL-10	OLD FIRE TRAINING AREA/BURN PIT	x								
FORT MCCLELLAN										
FTMC-33	AREA T-24A EOD TRAINING AREA	x								
FORT RUCKER										
FTRU-051	FIREFIGHTING TNG AREA, SWMU 15			x						
FTRU-070	PESTICIDE STOR/HANDLE(BLDG 1476)SWMU 49				x					
FORT WINGATE										
FTWG-04	BURNING GROUND	x								
HAMILTON ARMY AIR FIELD										
HAFB-001	REMOVAL/CLOSURE USTS				x					
HAFB-010	EAST LEVEE REFUSE DISPOSAL AREA BURN PIT				x					
HAFB-022	REMEDIATION OF SOIL AT AST 6 AND 7				x					
HAWTHORNE ARMY AMMUNITION PLANT										
HWAAP-B13	101-29/36 CATCHMENT PIT									x
HWAAP-B27A	103-16 CATCHMENT PIT					x				
HWAAP-B27C	103-20 SURFACE IMPOUNDMENT				x					
HWAAP-B29	103-41 UNLINED PONDS									x
HWAAP-H05	OLD DEPOT LAUNDRY WASHOUT		x							
HWAAP-I09	49-10 PIT/LANDFILL #1		x							
HWAAP-J14	103-6 TRENCH									x

Table C-1. Sites with Proposed Remedial Actions that Will Have No Effect on Metal Contamination in Soil or Sediment

SITE NAME	DESCRPTN	GW Only	BV	SVE	NM	BIO	UXO	RVW	NFA	COMP
INDIANA AAP										
INAAP-03	NORTH ASH SETTLING BASIN	x								
JEFFERSON PROVING GROUND										
JPG-02	SEWAGE TREATMENT PLANT LAB (S)				x					
KANSAS AAP										
KAAP-20	AREA 900 WASHWAT SUMPS AND DISCHG PTS	x								
KAAP-21	AREA 1000 WASHWAT SUMPS AND DISCHG PTS	x								
KAAP-22	AREA 1100 WASHWAT SUMPS AND DISCHG PTS	x								
KAAP-25	OIL SPILL RESIDUE LAND FARM		x							
KAAP-41	WATER TOWERS				x					
LAKE CITY AAP										
LCAAP-016	AREA 16 - ABANDONED LANDFILL	x								
LCAAP-018	AREA 18-BURNING PITS, LAGOONS & TRENCHES			x						
LEXINGTON FACILITY-LBAD										
LEX-035	COAL PILE AND ASH SILO (BLDG #7)				x					
LEX-055	AREA "B"				x					
LEX-074	CULVERTS				x					
LEX-075	VEHICLE WASHRACK I (SWMU # 22)				x					
PRESIDIO OF SAN FRANCISCO										
LAAFRC-003	OU #3 CFR,REVETMENTS,AIRCRAFT WASH	x								
MILITARY OCEAN TERMINAL, BAYONNE										
LOT 100DD	OU8-LOT100DD DRYDOCK - LOT100DD				x					
PRESIDIO OF SAN FRANCISCO										
PRES-66B	DISTURBED AREA 3				x					
PRES-66E	DISTURBED AREA 1 (EXCLUDING MOUND)				x					
PRES-66G	DISTURBED AREA 1 (MOUNDED AREA)				x					
PUEBLO CHEMICAL DEPOT										
PUADA-06	BURN AREA						x			
PUADA-047	BUILDING 547			x						
RADFORD AAP										
RAAP-017	BURIAL ACTIVATED CARBON DISPOSAL(S53)	x								
RAVENNA AAP										
RVAAP-03	DEMOLITION AREA #1						x			
RVAAP-05	WINKLEPECK BURNING GROUNDS		x							
RVAAP-08	LOAD LINE 1 DILUTION\SETTLING PONDS		x							
RVAAP-09	LOAD LINE 2-DILUTION\SETTLING POND		x							
RVAAP-10	LOAD LINE 3-DILUTION\SETTLING POND		x							
RVAAP-12	LOAD LINE 12-DILUTION\SETTLING POND		x							
RED RIVER ARMY DEPOT										
RRAD-57	MAINTENANCE SALVAGE YARD				x					
RRAD-58	HAYES(FORMER)BATCH TREATMENT PLANT AREA	x								
REDSTONE ARSENAL										
RSA-011	INACTIVE SEWAGE TREATMENT PLANT 1	x								
RSA-014	UNLINED INACTIVE BURN TRENCHES	x								
RSA-032	INACTIVE SCRAP METAL STORAGE AREA	x								
RSA-050	INACTIVE MUNITIONS DEMIL & DISPOSAL AREA				x					
RSA-112	SUSPECTED FORMER DEMIL & DISPOSAL AREA				x					
ROCKY MOUNTAIN ARSENAL										
CSA-1B	CONTAMINATED FILL							x		
CSA-1D	LANDFILL							x		
ESA-3B	STORAGE AREA							x		
NCSA-1C	SURFACE DISPOSAL AREA							x		
NCSA-1F	SURFACE DISPOSAL AREA							x		
NCSA-2A	SURFACE DISPOSAL AREA							x		
NCSA-2B	SURFACE DISPOSAL AREA							x		
NCSA-2C	SURFACE DISPOSAL AREA								x	
NCSA-5A	SURFACE DISPOSAL AREA							x		
NCSA-5B	SURFACE DISPOSAL AREA							x		
NCSA-5C	SURFACE DISPOSAL AREA							x		

Table C-1. Sites with Proposed Remedial Actions that Will Have No Effect on Metal Contamination in Soil or Sediment

SITE NAME	DESCRPTN	GW Only	BV	SVE	NM	BIO	UXO	RVW	NFA	COMP
NFU-A	CONTAMINATED BUILDING							x		
NFU-MP	CONTAMINATED BUILDING							x		
NPSA-1	WASTE LINES							x		
NPSA-8C	CONTAMINATED SEDIMENT							x		
SPSA-1B	CONTAMINATED SOIL							x		
SPSA-3B	STORAGE AREA							x		
SPSA-4A	SURFACE DISPOSAL AREA							x		
SPSA-6	SPILL SITE AREA							x		
SPSA-8A	LANDFILL							x		
SSA-1C	SURFACE IMPOUNDMENT							x		
SSA-2B	STORAGE AREA							x		
SIERRA ARMY DEPOT										
SIAD-014	BUILDING 210 AREA	x								
SUNFLOWER AAP										
SAAP-009	NORTH ACID AREA WASTEWATER TRMT LAGOON				x					
SAAP-011	F-LINE AREA SETTLING PONDS				x					
SAAP-015	WASTE STORAGE MAGAZINES				x					
SAAP-016	TEMP WASTE STORAGE MAGAZINES				x					
SAAP-022	OLD WASTE EXPLOSIVES BURNING GROUND		x							
SAAP-039	SOUTH ACID AREA (WASTE WAT RUN OFF)				x					
SAAP-044	TANK T784				x					
SAAP-046	DECONTAMINATION OVEN				x					
SAAP-051	BATTERY HANDLING AREA				x					
TOOELE ARMY DEPOT										
TEAD-24	BRAC-OLD IWL (SWMU 30)								x	
U.S. ARMY SOLDIERS SYSTEMS COMMAND										
NRDEC-10	SPILL SITE				x					
USARC CHURCHLAND (PORTSMOUTH)										
SITE 03	SEPTIC TANK/LEACHFIELD	x								
USARC CURTIS BAY (AMSA 83)		x								
SITE 07	SEPTIC TANK	x								
USARC HAMPTON										
SITE 2	SEPTIC TANK/LEACHFIELD	x								
USARC WESTMINSTER										
SITE 01	SEPTIC TANK/LEACHFIELD	x								

Appendix D

Sites With No CTC Data for Remedial Actions

Appendix D

Sites With No CTC Data for Remedial for Redial Actions

The estimate of metals-contaminated soils included in this report is a reflection of remedial activity and only sites that had activities in Phases 4 and 5 (RA and IRA) were used to build the estimate. Among the 762 DSERTS sites for which there was CTC data, 164 sites had no costs for Phases 4 and 5. These 164 sites, listed in Table D-1, were omitted from the estimate because no remedial actions involving soil are planned for these sites. Of these 164 sites, 72 sites had only Phase 6 and/or 7 costs. For these 72 sites, remediation of soil has been completed or was never required and only monitoring or treatment of groundwater is required. Seventy of the 164 sites have no CTC data beyond Phase 3 (RD). This means that site investigations are expected to reveal that no further action is required or that so little is known about the sites that remedial actions could not be planned or budgeted. It is likely that, for some of these 70 sites, RI/FS activities planned in the future may reveal that remedial actions are required. For 22 of the 164 sites, Phases 1 through 3 and Phases 6 or 7 have costs while there are no costs for Phases 4 and 5. For these 22 sites, groundwater appears to be the only media involved in restoration activities.

Table D-1. Sites with No CTC Data for Remedial Actions

INSTALLATION	SITE NAME
ABERDEEN PROVING GROUND	EANS01-D
	EAOE19
	EAOF00
	EAOF03
ANNISTON ARMY DEPOT	ANAD-14
	ANAD-18
	ANAD-19
	ANAD-20
	ANAD-37
ARDEC (PICATINNY ARSENAL)	PICA-015
	PICA-021
	PICA-022
	PICA-029
	PICA-047
	PICA-057
	PICA-058
	PICA-063
	PICA-074
	PICA-075
	PICA-077
	PICA-080
	PICA-085
	PICA-098
	PICA-102
	PICA-111
	PICA-113
	PICA-116
	PICA-117
	PICA-119
	PICA-131
	PICA-163
	PICA-164
	PICA-167
	PICA-168
	PICA-169
	PICA-170
	PICA-171
	PICA-173
	PICA-174
	PICA-178
	PICA-180
	PICA-200
	PICA-207
	PICA-208
	PICA-210

Table D-1. Sites with No CTC Data for Remedial Actions

INSTALLATION	SITE NAME
BADGER AAP	BAAP-005
	BAAP-008
	BAAP-34
	BAAP-35
BLUE GRASS FACILITY-LBAD	BLGR-024
CAMP KILMER	CK-07
DUGWAY PROVING GROUND	DPG-038
	DPG-040
	DPG-172
	DPG-175
	DPG-178
	DPG-184
	DPG-188
	DPG-189
EAST WINDSOR USARC	SITE 17
FORT BRAGG	FTBR-012
	FTBR-102
FORT CAMPBELL	FCPB-63
FORT CHAFFEE	FTCH-21C
	FTCH-27
FORT DEVENS	FTDV-004
	FTDV-040
	FTDV-057
FORT DIX	FTDX-10
FORT EUSTIS	FTEUST-33
FORT GILLEM	FTG-02
FORT GORDON	FTGD-019
	FTGD-020A
	FTGD-031
FORT HUACHUCA	FTHU-54A
FORT MCCOY	FTMC-01
FORT POLK	POLK-06
FORT STEWART	FST-003
	FST-013

Table D-1. Sites with No CTC Data for Remedial Actions

INSTALLATION	SITE NAME
FORT WAINWRIGHT	FTWW-047
FORT WINGATE	FTWG-02
	FTWG-28
	FTWG-29
HAWTHORNE AAP	HWAAP-G01A
HOLSTON AAP	HSAAP-01
INDIANA AAP	INAAP-06
	INAAP-09
	INAAP-35
	INAAP-63
	INAAP-87
JEFFERSON PROVING GROUND	JPG-05
LAKE CITY AAP	LCAAP-001
	LCAAP-003
	LCAAP-004
	LCAAP-006
	LCAAP-009
	LCAAP-010
	LCAAP-011
	LCAAP-014
	LCAAP-019
	LCAAP-020
	LCAAP-021
	LCAAP-022
	LCAAP-023
	LCAAP-024
	LCAAP-025
	LCAAP-026
	LCAAP-027
	LCAAP-028
	LCAAP-029
	LCAAP-032
	LCAAP-033
	LCAAP-034
LEXINGTON FACILITY-LBAD	LEX-005
	LEX-006
	LEX-009
	LEX-010
	LEX-013
	LEX-053
LONE STAR AAP	LSAAP-008

Table D-1. Sites with No CTC Data for Remedial Actions

INSTALLATION	SITE NAME
PINE BLUFF ARSENAL	PBA-06
	PBA-07A
PRESIDIO OF MONTEREY	FTO-003
(FORT ORD ANN)	FTO-016
	FTO-039
PRESIDIO OF SAN FRANCISCO	PRES-04
	PRES-24
PUEBLO CHEMICAL DEPOT	PUADA-025
	PUADA-046
	PUADA-049
	PUADA-058
	PUADA-059
	PUADA-061
	PUADA-062
RADFORD AAP	RAAP-005
	RAAP-008
	RAAP-020
	RAAP-023
REDSTONE ARSENAL	MSFC-060
	MSFC-077
	RSA-009
	RSA-013
	RSA-046
	RSA-049
	RSA-117
	RSA-126
	RSA-140
	RSA-141
ROCKY MOUNTAIN ARSENAL	CERCLA-LW
SENECA AD	SEAD-023
	SEAD-050
SIERRA ARMY DEPOT	SIAD-058
SUNFLOWER AAP	SAAP-012
	SAAP-013
	SAAP-017
	SAAP-023
	SAAP-025
	SAAP-027
	SAAP-037

Table D-1. Sites with No CTC Data for Remedial Actions

INSTALLATION	SITE NAME
UNITED STATES MILITARY ACADEMY	WSTPT-44
VOLUNTEER AAP	VAAP-16
	VAAP-20
	VAAP-33
WATERVLIET ARSENAL	WVAA-22